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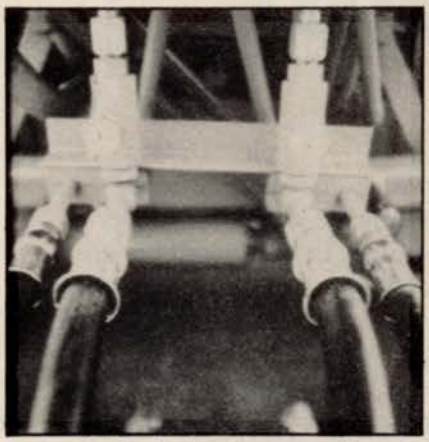
WT&T

Cover: Performing competent brick masonry of walls, walks and other landscape elements can provide landscape contractor with an edge when competing for business.

APRIL 1982/VOL. 21, NO. 4

Toro, circa 1929. P. 20.



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OUTLOOK

By Bruce F. Shank, Executive Editor

Extension's Battle for Bucks

Education, Research Are Now Businesses

The squeeze on funds for research and extension is reaching new proportions. Uncertainty of Federal dollars, reduced inflation, and lack of public support for specialty programs are beginning to take their toll on the technical backbone of the Green Industry.

Even departments run by professors with savvy are suffering cutbacks. Department heads are cutting operations and travel budgets to avoid cutting staff. Grant funds mean more to these departments now than ever before.

To obtain as much funding as possible, department heads have been forced to become salesmen, record keepers, and more visible to budget decision makers. Concentration on research is diluted by politics. Even if a project is adequately justified, it still must compete with other projects and other departments.

Consequently, extension and research needs your support. If you've never written your government representatives, please start today. The focus should be on state representatives due to the Reagan Block Grant Program. Tell them of the beneficial effect extension and university research has had on your business. Mention names of extension personnel who make major contributions to your market. Describe problems requiring future research and educational assistance. Be concise, keeping your letter to one page. Frequency is more important than length.

Describe the importance of your market to the representative's region. Try to determine the number of people (voters) employed in your business in your area, the taxes paid by such businesses, and the good will the district derives from your business. In states like Florida and Ohio, the value of landscape services is a major agricultural resource of the state.

Do not assume your state or regional association should fulfill this role. It should participate, but don't assume anything.

One possible result of the squeeze may be a more responsive extension service. Certainly research will shift to applied from basic. On the other hand, it may become too responsive to its grant sponsors at the expense of topics such as integrated pest management.

Regardless of the outcome, we absolutely require the valuable services of the Extension Service and state universities to progress. The time is now to speak up. A year from now could be too late. By 1985, Reagonomics will be in place and state priorities will be set for block grant funds. State legislators are forming their opinions right now. University department heads have saved their critical programs for 1982, but 1983 is another matter.

We are competing against the big boys, welfare, highways etc. Parks, turf, horticulture, nursery, interior landscaping, and landscape architecture need to publicize their value to their state today. Too often the Green Industries are inappropriately linked to consumer gardening. The distinction needs to be clear to state representatives. We are talking about in-state jobs, not hobbies. **WTT**

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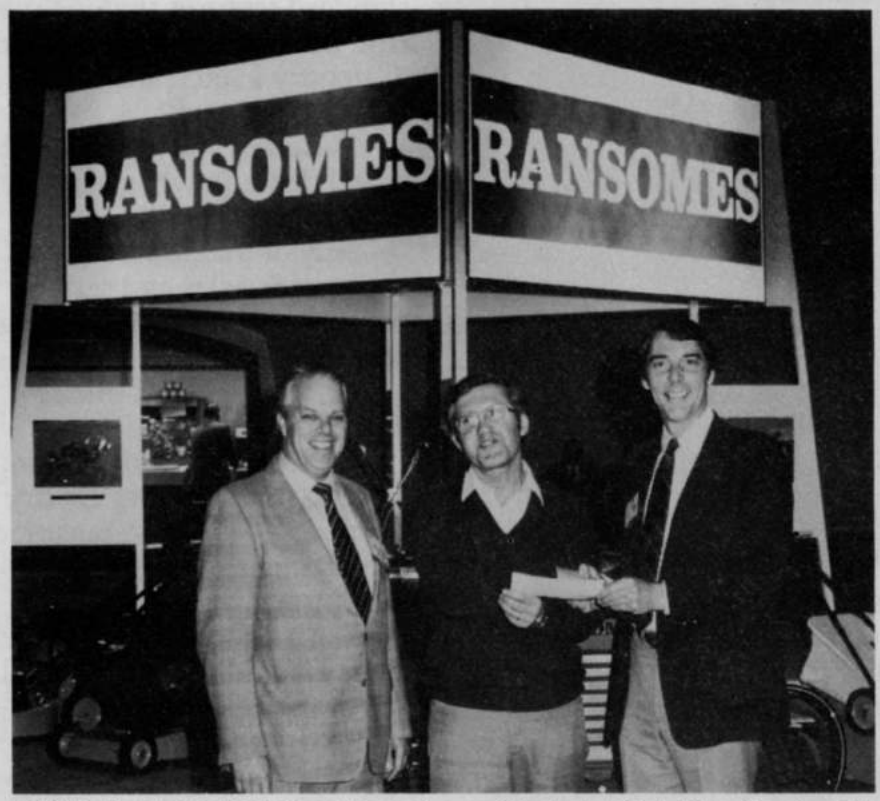
GREEN INDUSTRY NEWS



$1000 is handed to Keith Scott (center), superintendent at Oak Ridge Country Club, Hopkins, MN, by *WTT* Sales Manager Jim Brooks. Scott was the top prize winner in *WTT's* "Long Green Sweepstakes" at the Golf Course Superintendents Association of America Convention in New Orleans. Looking on is Ransomes' John Wilson, grass machinery sales manager, at whose booth Scott registered for the sweepstakes.

ASSOCIATION

California green industry assembling educational coalition

In a recent meeting, selected members of the California green industry discussed the possibility of arranging general meetings of industry members on a large scale. The proposed sessions would give industry members a periodic chance to share and disperse information.

At the preliminary meeting in Sacramento, participants from the California Association of Nurserymen, California Landscape Contractors and the Department of Parks and Recreation recommended that the attending groups be made up of individuals who are representative of an entire segment of the industry rather than smaller, or local, groups. The conferences would also be limited to participants within the state.

Tentative plans called for the participating groups to submit a written report of their activities prior to the meetings and then follow it up with a presentation. The meeting would also serve as a forum for the exchange of publication lists and educational program information.

The $500 prize went to Gary Stafford, GCS at Cardinal Golf Club, Greensboro, NC. Stafford signed up at the Stauffer booth.

The $250 prize went to Paul Latshaw, GCS at Oakmont Country Club, Oakmont, PA. Latshaw registered at Safe-T-Lawn booth.

FERTILIZER

Milorganite cadmium warning eased

The Milwaukee Metropolitan Sewerage District soon may weaken its warning against using Milorganite fertilizer on gardens. The amount of cadmium in Milorganite, which led to the warning, has been cut in half.

Since 1926, the waste water treatment plant has made Milorganite from sewage that has been treated and dried. In 1978, the district placed this warning in a prominent position on Milorganite bag advertisements.

The cadmium level in Milorganite, previously linked to kidney damage, has fallen because the district is requiring industrial plants to treat

Continues on page 12

PENNEAGLE Creeping Bentgrass

The grass that re-greened Butler National

A devastating grass disease virtually destroyed the greens at Butler National Golf Club, Oak Brook, Illinois, home of the *Western Open*, shortly before the 1980 tournament. The Butler Board of Directors decided to replace the grass on all greens and after viewing several varieties of bentgrass in the Chicago area, they selected Penneagle Creeping Bentgrass for the restoration program.

Dr. Joseph M. Duich, professor of Turf Science, Penn State University, and developer of Penneagle bent was called in as a consultant. Working closely with Oscar Miles, Course Superintendent, the reseeding of Butler National was begun in mid-August 1980. Before the project was completed, the entire course was seeded to Penneagle Bentgrass.

By November the course was pronounced in excellent condition and by the 1981 Western Open the course drew raves from players and spectators alike.

The TEE-2-GREEN CORP., marketers of Penneagle and Penncross bentgrass has published a booklet complete with photos of the Butler restoration program. The step by step program at Butler is available free of charge.

Ten minute slide presentation available on loan. Call or write:

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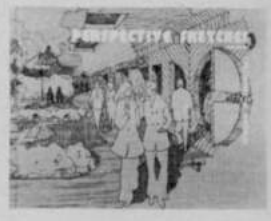

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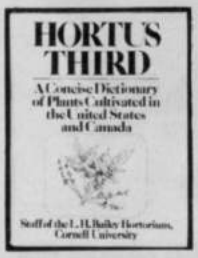

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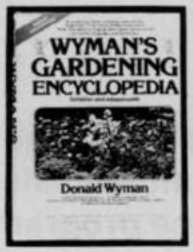

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GOLF UPDATE

Long Island superintendents elects officers

New officers and directors for the Long Island Golf Course Superintendents' Association were elected at the group's annual meeting. The new officers are: Peter Bass, Hauppauge Country Club, president; Richard NcGuiness, Woodmere Club, vice president; Robert Matthews, Fox Run Country Club, secretary; Peter Ruggieri, Inwood Country Club, treasurer.

New directors are: Charles Brett, Nassau Country Club and Robert Kamp, Pine Hollow Country Club. Continuing as Directors are Joseph Alonzi, Huntington Crescent Club; Hank Heddesheimer, Cherry Valley Club; and Greg Vadala, Southward Ho Country Club. Edward Fufaro, Fresh Meadows Country Club, will serve as Past President and Ann Reilly will serve as Executive Secretary.

During 1982, the L.I. Golf Course Superintendents' Association will be involved with educational programs, golf, the Invitational Tournament, assistance to scholarship and research, publication of a newsletter, and establishment of a working club relations committee. L.I.G.C.S.A. is also co-sponsor of the 14th Annual Turf and Plant Conference held at the Colonie Hill Country Club.

NGF Workshop set for Disney World

The 1982 Golf Course Management Workshop will be held Nov. 28-Dec. 1 at the Americana's Dutch Resort Hotel in Lake Buena Vista, FL. The Workshop site is located in Walt Disney World Village Hotel Plaza. The four-day event will be sponsored by the National Golf Foundation for the eighth consecutive year.

The general sessions will feature outstanding speakers addressing topics of vital concern to golf facility owner/operators. The concept of rountable discussions, so well received last year the Pheasant Run, IL Workshop, will again be held for public, private and municipal course representatives.

The 1981 Workshop proceedings are now available in a 50-page report. All Workshop attendees and speakers will be sent complimentary copies of the proceedings. The report also is available by request from NGF headquarters for $25.

149 golf courses open in 1981

According to National Golf Foundation research, 149 golf courses opened for play in the U.S. during 1981. This represents a 13% increase over the 132 course openings reported during 1980. The leading states reporting course openings in 1981 were Florida with 26, California 10, Texas 9, Arizona and Michigan 8 apiece, Minnesota and Wisconsin 6 apiece, and Colorado, New York and South Carolina 5 apiece. These 10 states accounted for 59% of the total new course openings.

For the second straight year, Florida emerges as the nation's leader in combined course openings, construction starts and prospects with 84 in 1981 and 76 in 1980. California is second with 30. The only states not reporting some activity in golf course development during 1981 were Alaska, Delaware, Rhode Island and South Dakota.

Approximately 78% of the new private course openings in 1981 were part of planned real estate developments. Fifty-six percent of the new daily fee facilities were also associated with land development ventures. Fifty-eight of the 149 courses opening were additions to existing facilities, while of the 118 new construction starts in 1981, 53 were additions.

cadmium-laden wastes before flushing them into the sewer system.

The staff is now proposing that Milorganite bags be redesigned to include a "notice" rather than a warning about possible danger.

By law, Milorganite is classified as a specialty fertilizer for non-farm use. Its sales constituted about 10 percent of the U.S. market for fertilizer last year, about 60,000 tons.

EQUIPMENT

Jacobsen's Thomas to head expanded sales and service programs

Roger Thomas, vice president of sales for Jacobsen Division of Textron, has been named to direct a new program for the expansion of domestic and international sales of all Jacobsen products.

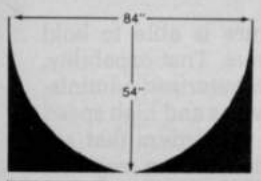
Roger Thomas

Thomas has also been assigned the responsibility for all parts sales, all field service activities, technical publications and Jacobsen's product training center at Racine, WI. He is a veteran of 34 years with Jacobsen.

According to Jacobsen President John Dwyer, Thomas' promotion will be in line with an addition of new products that will be unveil in the fall of 1982. Jacobsen's new products will respond to the changing requirements, specifications and expectations of its domestic as well as its international markets. "Roger Thomas has many years of experience with turf grasses

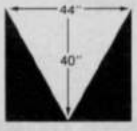
Continues on page 14

Vermeer Buyer's Guide for tree-moving equipment.



TS-84T. Truck-mounted. Transplants trees with maximum trunk diameter of 8". Six hydraulically activated, high tensile steel spades. Gravity-feed water tanks for spade lubrication.

TS-50M. Truck-mounted. Outstanding maneuverability. Extension and side-shift features let you hydraulically position the spade an additional 21" away from the frame and 15½" left or right of center.



TS-44. Available in trailer-mounted, tractor-mounted or truck-mounted models. (Plus the option to extend or side shift for greater maneuverability as a truck-mounted unit.) Hydraulically transplants 4" diameter trees.

TS-30. Trailer-mounted or tractor-mounted. Ideal for nurseries, tree farms, rental yards and tree service firms. Adjustable towers enable operators to transplant or package either cone shaped or flat-bottom trees or shrubs up to 3" in diameter.

TS-24. Compact. Economical. Tractor-mounted. Or, slips onto the forks of most skid steer loaders equipped with an auxiliary hydraulic hookup (with a minimum lifting capacity of 1,200 lbs.). Transplants or packages small trees up to 2".

TS-20. Vermeer's mini-spade. Ideal for nurseries that package large quantities of stock for resale. Tractor-mounted. Hooks up to the standard Category I or Category II three-point hitch of your tractor.

Call today! (800) 247-2347*

*(In Iowa, call collect (515) 628-3333)

Vermeer Manufacturing Company, 8804 New Sharon Road, Pella, Iowa 50219

Circle No. 155 on Reader Inquiry Card

LANDSCAPE UPDATE

NLA/GCA clinic mirrors business needs

The 1982 Landscape/Garden Center Management Clinic held at the Galt House, Louisville, KY, attracted over 500 attendees. At the clinic, sponsored by the National Landscape Association and the Garden Centers of America, participants and speakers agreed that increased attention to business management and marketing can turn 1982 into a good year for the industry.

Clinic observers noted that education sessions focusing on personnel and financial management techniques and other business topics were well attended. One of the well received innovations of the clinic was the buzz sessions where attendees have the opportunity to ask questions, share knowledge or clarify an opinion expressed by the speakers during the day's sessions. Jack Siebenthaler, horticultural consultant; Leroy Hannebaum, landscape consultant; and Frank Lester, management consultant, all took part in buzz sessions following their seminars.

Other highlights of the meeting included presentation of NLA Residential Landscape Awards, GCA Display Awards and recognition of GCA's Tenth Anniversary.

Design courses offered in Arizona

The Arizona Landscape Contractors' Association is sponsoring courses in residential landscape design, landscape construction details and advanced landscape drawing. The courses are open to professional contractors, landscape architects/designers, college students and swimming pool designers and will be offered July 22-31 in Scottsdale, AZ.

The three courses are part of a nationally recognized program offered annually since 1973. This year the program will also be offered in Pennsylvania and Ohio. Each course is limited to 60 students and will be taught by members of the Ohio State faculty. Instructors this year are Jot Carpenter, chairman of the landscape architecture department and former president of the American Society of Landscape Architects; Fred Buscher, OSU Cooperative Extensive Service; and Norman Booth, landscape architecture faculty.

Forty-four plantscapers pass exam

Although a complicated, six-step application process prevented many plantscapers from taking the test, 44 of 50 who sat for the first National Council for Interior Horticultural Certification exam passed. The exam was held during the Interior Plantscape Association Convention last year in St. Paul, MN.

Even with the 88% success rate, the general feeling among examtakers was that it was more difficult than expected. NCIHC Chairman Donald Gammon noted a general comment was that the questions in the review manual were easier than the actual questions. Horticulture questions make up 35% of the exam, design 15%, business 20%, and maintenance 30%. Minimum levels have been established for each section and anyone scoring below the minimum on any section fails the exam.

Besides passing the exam, candidates must be approved by a majority vote of the nine-member NCIHC board of governors before being certified. Certification exam applications may be requested from the National Council for Interior Horticultural Certification, P.O. Box 17148, Washington, DC 20041.

and turf care machines," said Dwyer. "He and his people are looking forward to broadening our distribution line of heavy duty products with these new product introductions later this year."

Jacobsen centralizes equipment shipping

Dealers of Jacobsen lawn and garden care equipment are now able to receive delivery within a week after placing their orders, due to the recent completion of a new base distribution center in Memphis, Tennessee. According to John W. Shriver Jr., executive director of product distribution, the new facility will reduce out-of-stock conditions, processing, shipping, and delivery times.

The new structure is able to hold 100,000 lawn mowers. That capability, combined with computerized administrative support services and high speed fork lifts, enables the orders that are processed throughout seven regional distribution centers to be shipped within 48 hours.

BUSINESS

Southwest best manufacturing climate

A report released by the Alexander Grant and Co. accounting firm and the Conference of State Manufacturers Associations (COSMA) rates the southwestern states as the most conducive area in the U.S. for business. Florida, Texas and Colorado were the top three states, individually, in the ranking.

The regions that exhibited the worst climate for businesses were the New England Mid Eastern and Great Lakes States.

The data was compiled from replies by 38 state manufacturers associations. In their answers, the associations first weighted the factors as the the relative inportance of each to the region. Each state was then scored for the factors.

The most recent survey calculated the rankings by using 22 business factors, rather than the 18 that had been compiled last year. Five categories of factors included local and state government fiscal costs, availability and productivity of the labor force and state regulated labor costs.

The state and local fiscal policies were judged by the amount of state and local taxes, the rate of change in taxes, the state's expenditure growth vs. its

Continues on page 16

THESE INSECTS HAVE ONE THING IN COMMON

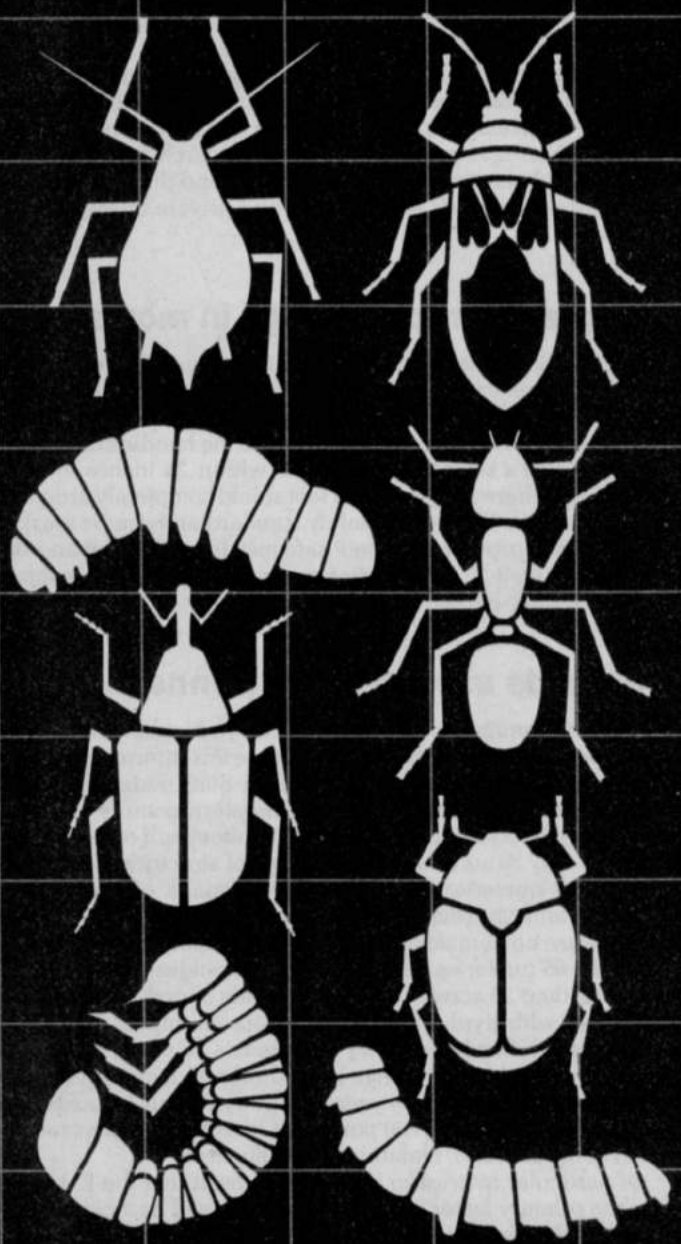
They now can be controlled by a NEW effective carbamate insecticide *TURCAM*®

TURCAM Insecticide offers the professional turf and ornamental care specialists a new effective broad spectrum insecticide for the control of a wide range of ornamental and turf pests including gypsy moth, Eastern tent caterpillar, certain scale insects and weevils, Japanese beetles, sod webworms, chinch bugs, mole crickets, white grubs and various nuisance pests such as fleas, wasps and fireants.

In addition to controlling these and many other pests, TURCAM

- Will not damage your ornamentals
- Will not get tied up in your turf thatch
- Is odorless
- Is suitable for use in Liquid Systems.

For further information on TURCAM including full labeling and recommendations for use please contact your local distributor or write to the address below.



TURCAM®
Broad Spectrum Insecticide

™

BFC Chemicals, Inc.
4311 Lancaster Pike
Wilmington, DE 19805

Circle No. 106 on Reader Inquiry Card

GOVERNMENT UPDATE

Budget exterminating pesticide programs

President Reagan's firm resolve to decrease the regulatory burden where he feels the federal government has intruded excessively and unnecessarily has hit hard at EPA and USDA pesticide regulatory programs. In fiscal year 1983, EPA pesticide activities would be cut by $3 million and 84 employees from the 1982 figures of $51 million and 661 employees.

The new administration hopes that streamlining product reviews, reducing time on registration and tolerance applications and new management reforms will result in more work being done with less money and staff. Reductions are more drastic in USDA. The Animal and Plant Health Inspection Service plans only minimal funding for the imported fire ant, boll weevil, gypsy moth and pink bollworm programs and no funds for golden nematode, grasshopper, West Indian sugarcane rot borer, noxious weeds and witchweed programs. Revoking federal domestic quarantines for many of these regulated pests (gold nematode, gypsy moth, pink bollworm and witchweed) is under consideration.

The U.S. Forest service cuts will spell the end of the federal cost sharing suppression programs aimed at chronic pests. The service is slated to lose 1751 positions and eight research facilities. Priority would be given only to protecting Federal lands and timber resources from major outbreaks of pests leaving state and private interests to protect their own lands.

Congress directs change in mower regs.

The U. S. Congress has directed the Consumer Product Safety Commission to change its safety standard for certain walk-behind power lawn motors. These are the rotary types in which the cutting blade stops within three seconds after the operator releases the handle and the engine stops. If the mower's starting controls are within 24 inches of the top of the handle or if there is a protective foot shield completely around the mower housing, they will meet the safety standard and can be marketed. These features will provide adequate safeguards for the feet and the hands of the user. About 77,000 injuries occur each year from contact with the blades of walk-behind mowers.

Pesticide use survey in Pennsylvania

Commercial nurseries are known to use pesticides extensively but there being only limited information available it is informative when a survey comes to light. Recently Pennsylvania State Extension Service interviewed 167 nurseries in seven southeastern counties of the state. The nurseries owned about 8,000 acres with about half of that in field production and only 20 acres under some type of structure.

Only 20 nurseries used about 800 pounds of rodenticides, mostly Warfarin and zinc phosphide and one nursery accounted for 300 pounds. There were no nematocides and only 39 pounds of the fumigant, methyl bromide. 65 nurseries (39%) used no herbicides—most of them growers with less than 20 acres. Over 1100 pounds of post emergence herbicides were used with glyphosate (Roundup) accounting for 61% of the total. Almost as much Simazine (47%) was used as all of the other 2 tons of pre-emergence herbicides. It has been the basic material in nursery weed control programs for many years. There were only 25 cases of crop injury with herbicides. Over 7600 pounds of insecticide were used with the top three being carbaryl, malathion and Diazinon.

Of particular interest to me was the result that the Extension Service was the primary factor (38%) in the selection of pesticides by the nursery men. Previous experience, salesmen and other growers represented 42% of the responses.

NEWS *from page 14*

revenue growth, debt and welfare costs.

The availability and productivity of the labor force was estimated by assessing the amount of vocational education in the state, totalling the number of manhours lost and the average hours worked in a week. State regulated employment costs were figured using unemployment compensation, unemployment, net worth, maximum workers' compensation payment and the workers' compensation rates. The labor cost estimations utilized a combination of hourly wage, the change in that wage and the cost of unionization.

Other manufacturing costs were taken in to account such as energy costs, environmental controls, population density and the change in population.

CHEMICALS

Garnett to manage Chipco Products

Jerry Garnett, from May and Baker Division of Rhone Poulenc in the United Kingdom, has been named product manager for Chipco turf and landscape products.

Jerry Garnett

Jerry will move to Monmouth Junction, NJ, from the U.K. Before joining May and Baker, Garnett spent ten years launching new products for Fisons, now BFC Chemical.

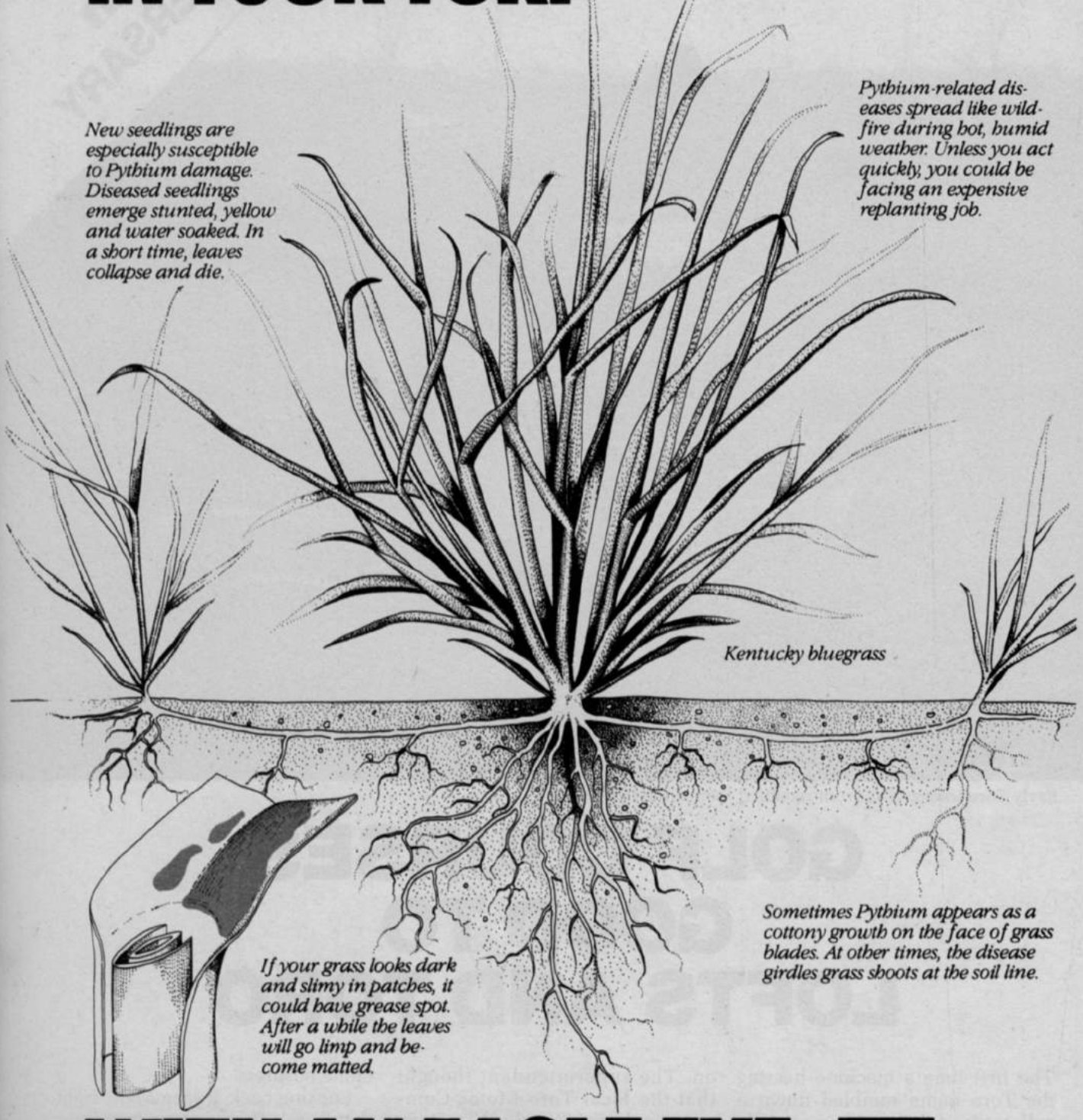
Lebanon promotes Mengle, four others

Lebanon Chemical Corp. recently announced five new appointments to their staff.

Paul Mengle was promoted to sales

Continues on page 18

WATCH OUT FOR FUNGUS IN YOUR TURF


New seedlings are especially susceptible to Pythium damage. Diseased seedlings emerge stunted, yellow and water soaked. In a short time, leaves collapse and die.
Pythium-related diseases spread like wildfire during hot, humid weather. Unless you act quickly, you could be facing an expensive replanting job.
Kentucky bluegrass
Sometimes Pythium appears as a cottony growth on the face of grass blades. At other times, the disease girdles grass shoots at the soil line.
If your grass looks dark and slimy in patches, it could have grease spot. After a while the leaves will go limp and become matted.

WITH AN EAGLE EYE.

Olin

Rely on Terrazole for effective control of certain fungal turf diseases (cottony blight, grease spot and damping off). **Terrazole® soil fungicide.**

Caution: Read and follow label direction carefully. Terrazole® is a Registered Trademark of Olin Corporation.

Circle No. 138 on Reader Inquiry Card

Early Toro tractor *with front-mounted reels, circa 1929.*

GOLF COURSES GOOD TO LOFTS AND TORO

The first time a machine bearing the Toro name rambled down a golf course fairway, it was strictly an experimental run. The experiment—to try using a Toro Bull Tractor with gang mowers attached for fairway mowing—had been suggested by the superintendent of the Minikahda golf course.

The year was 1922 and the move to mechanization—and away from the horse-drawn mowers—was on. The superintendent thought that the local Toro Motor Company, maker of Toro Bull Tractors, might adapt equipment for fairway mowing.

The rest is history. Toro, of course, took the man's suggestion—and though its first design was somewhat crude with its wooden frame and rope steering mechanism, it firmly launched the Toro Company into the mowing machine business.

Looking back, it seems only right that Toro's first venture in mower design happened on a golf course. Since 1922, equipment for grooming golf courses has represented a key element in Toro's overall success—and has provided the basis for equipment designs for other turf management including parks, cemeteries, school grounds and

Continues on page 22

WE GEARED OUR GANG TO LAST.

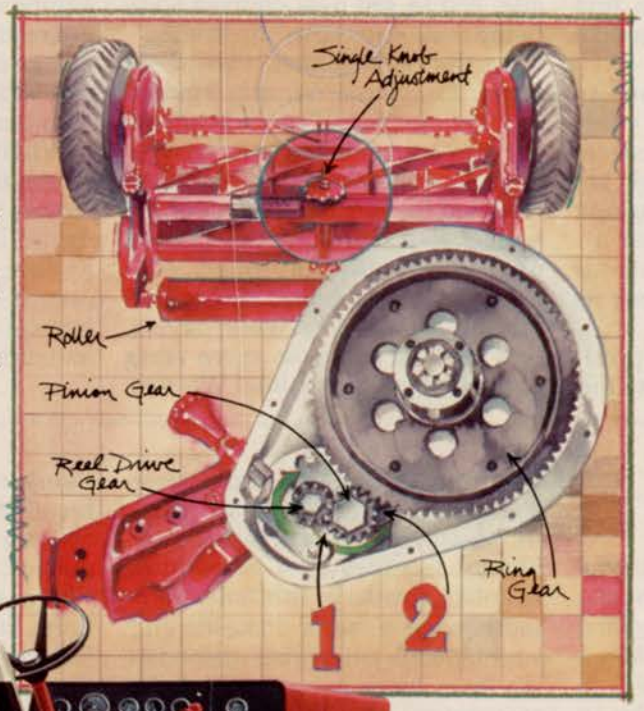
AND CUT YOUR COST OF CUTTING.

From day one, Toro has engineered the kind of gang mower you want for high acreage formal cutting.

A mower that keeps you cutting. Gets the job done.

Like our Spartan® gang mower, direct descendant of Toro's first pull type reel mower 60 years ago, and now the heart of our 7 or 9 unit Parkmaster® and 3, 5, 7 or 9 unit Universal frame.

Its durability is exemplified by the gear drive we use to transmit power from the wheels to the 5 or 7 blade reel.



Unlike the drive of one of our best known competitors, for example, it has few moving parts and just two major points of contact. That means less downtime, fewer repairs and parts replacements.

And, besides its time proven durability, this simple gear drive system gives you what you want most in formal cutting. A more consistent quality of cut.

And Toro gears its gang with other features that keep you cutting. Like single knob bedknife-to-reel adjustment, a perfected roller system, and convenient height of cut adjustment from ½" to 2½", depending on wheel combinations.

Call your Toro distributor. He'll tell you more about our Spartan gang mower and its working partners. Parkmaster, for up to 18'6" widths of cut. And Universal frame, for 7' to 21' widths. He'll show you how Toro quality can cut your cost of cutting.

TORO®

THE PROFESSIONALS THAT KEEP YOU CUTTING.

"Toro" is a registered trademark of The Toro Company, 8111 Lyndale Ave. So., Minneapolis, Minnesota 55420.

Circle No. 152 on Reader Inquiry Card

TORO *from page 20*

athletic fields.

The surge in golf course growth in the 1960's—and the challenges that grew out of that expansion—led to some of The Toro Co.'s most important developments in turf maintenance tools in the past 20 years.

Since the 1960's, turf facility managers have confronted challenges that they found could be met through the use of increasingly sophisticated machinery. Throughout the period, Toro kept an ear attuned to golf course superintendents—and, in many cases, took its design cue from them.

Dr. Jim Watson, Toro vice president of customer relations and agronomist who has been with the company since 1952, remembers the 1960's as history's most dramatic period of golf course construction. "In the early part of decade, 350 to 400 new courses were being built each year," he said.

As the '60's passed, two needs began to emerge, Watson pointed out. For one, it had become apparent to everyone in the turf management business that labor costs represented the largest segment of the budget, and therefore, the greatest opportunity for improved efficiency. "People began to see that for the wages they were paying, they needed to groom more acres per man hour," explained Watson.

At the same time, he said, the trend in golf course maintenance was toward a more manicured, tightly-clipped appearance.

Both of these needs presented equipment manufacturers with an interesting pair of challenges: build more labor efficient equipment that did a better job of grooming than earlier models.

When Toro introduced its Greensmaster 3 triplex greensmower in 1970, the company introduced labor saving hydraulics on its first reel mower. The Greensmaster 3 allowed one man operating one unit to do the cutting that it had previously required three or

Continues on page 76

LOFTS

It all started with Selmer Loft, who in 1923, was the sole proprietor of a local seed company marketing for a Danish concern. In the late 50's a move from Manhattan, NY to larger quarters was dictated by an expanding business, changing the address to Jersey City, NJ.

From these rather humble beginnings, Lofts Seed has grown—as any viable seed should—to a nationwide marketing organization, with many varieties now being sold worldwide.

In the early 60's, another move, this time to Bound Brook, New Jersey—its current headquarters—was required to obtain the additional facilities now demanded by Lofts' growth. By this time, Lofts had become a major domestic and international enterprise, responsible for a large percentage of the proprietary turf market in this country.

During the past two decades, Lofts developed divisions throughout the country to keep production and marketing facilities in line with its broadened market coverage. Today Lofts employs 97 persons at six locations.

In 1963, Great Western Seed Company in Oregon was started to broaden the western market and oversee Loft's complete seed production located primarily in the Willamette Valley. Today much of Lofts' international sales are handled there as well. This operation is directed by Steve Tubbs.

The purchase of the Kellogg Seed Company in 1973 was a major step to broaden the company's Midwestern markets. It was through the Lofts/Kellogg operation that the company became involved in some diversified product marketing. Only recently however, a decision was made to sell off this portion of the Loft organization in order to better concentrate on the turf industry.

Servicing the many retail outlets in the New England area with Lofts' consumer line of seed and turf care products is Lofts/New England at Arlington, MA, which also functions as a distribution point for the entire Northeastern area. Jerry Zuccala is branch manager for this division.

Ray Bentley and son, Lance, at the Lofts/New York location handle all Lofts' mail-order lines, including all packing and shipping of Pinto Wildflower Mixes and Lofts' extensive packet seed line of flowers, herbs and vegetables.

Lofts/Maryland at Beltsville, managed by Strick Newsom, provides the turf-related business of the Washington/Virginia area with needed service. Among the better

Continues on page 78

Lofts brothers, *Jon (left) and Peter manage the Bound Brook, NJ-based firm.*

RAM I proven greener in test...after test...after test...after test...

Spring
Green Up Ratings*
Beltsville, MD · April 5, 1976

RAM I	**8.7**
Vantage	8.3
Merion	8.0
Kenblue	7.7
Park	7.3
Brunswick	7.3
Windsor	7.0
Touchdown	6.7
Adelphi	6.3
A-34	6.0
Bonnieblue	5.7
Sydsport	5.3
Fylking	5.0
Baron	4.3
Cheri	4.0
Glade	3.7
Nugget	1.0

Rating 1 · 9=Best

Test established fall 1972, mowed at 2.5" not irrigated and receiving 2 to 3 lbs. N/M/yr.

Spring
Green Up Ratings*
Kansas State University
April 6, 1977

RAM I	**8.0**
Glade	7.5
Adelphi	7.2
Arista	7.2
Bonnieblue	7.2
Sydsport	7.2
Majestic	7.0
Birka	6.8
Baron	6.5
Fylking	6.5
Rugby	6.5
Parade	6.5
Touchdown	6.3
Nugget	5.8

Rating 1 · 9=Best

Test established 1976, mowed at 1".

Summer
Color Ratings*
During Drought
Cornell University
Ithaca, NY

Nugget	7.7
Majestic, **RAM I**	**7.0**
A-20	6.7
Bonnieblue, Sydsport	6.3
Galaxy	6.0
Adelphi, Rugby, Touchdown	5.7
Bensun (A-34), Delft, Fylking, Vantage	5.3
Brunswick, Bristol	5.0
Birka, Primo, Banff, Windsor	4.7
Gougar, Baron, Parade	4.3
Merion, Victa, Glade	4.0
Cheri, Newport, Park, Aquila	3.7
Kenblue	3.0

Rating 1 · 9=Best

Two year old, unwatered turf

Fall
Color Rating*
University of Idaho · 1979

	Late Fall Color Oct. '79	Color - Avg. May/Oct. '79*
RAM I	**9**	**8**
Glade	9	8
Birka	9	7
Bristol	9	7
Baron	8	8
Newport	8	7
Sydsport	8	7
Cheri	8	6
Plush	8	7
Fylking	7	7
Nugget	7	7
Victa	7	7
Touchdown	7	6
Eclipse (P-164)	7	7
Merit	7	7
Adelphi	6	7
Kenblue	6	6
Merion	4	5
Park	4	5

Rating 1 · 9=Best

*Height of cut 1".

When compared with many other commercially available bluegrass varieties, nationwide university testing has proven RAM I superior in year-round color retention. Faster spring green-up, drought tolerance, and superior fall color make RAM I the bluegrass for consistent, good color all season long.

Ram I . . . the bluegrass which will earn you praise for turf that is really green . . . all season long.

*Commercially available Kentucky bluegrass varieties.

LOFTS

Lofts Seed, Inc.
Bound Brook, NJ 08805 (201) 356-8700 • (800) 526-3890

RAM I is a release of the U.S. Golf Association Greens Section/Rutgers University/Lofts Pedigreed Seed, Inc.

Jacklin Seed Company
Post Falls, ID 83854/(208) 773-7581

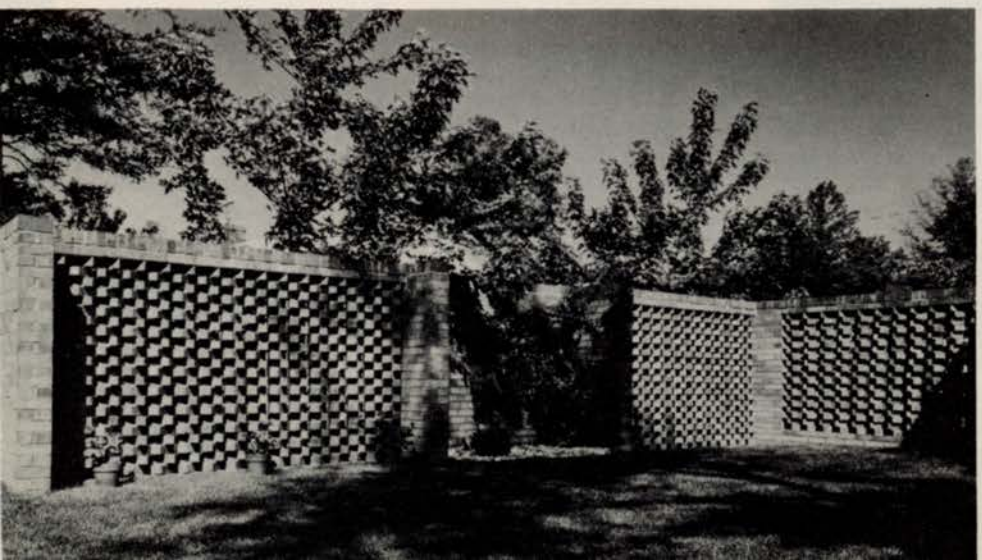
Canadian Distributor: Otto Pick & Sons Seed
Richmond Hill, Ontario • (416) 884-1147

Circle No. 127 on Reader Inquiry Card

KEY LANDSCAPE ELEMENTS

BRICK WALLS AND WALKS:

BY BRUCE F. SHANK, EXECUTIVE EDITOR



The ability of one landscape contractor to perform non-plant segments of landscape installation can be a definite edge over others in competing for business. Brick masonry of walks, walls, and other landscape elements is a practical, additional service for landscape contractors. Carpentry is another service to gain a service and profit edge. Carpentry will be discussed in June *Weeds Trees & Turf*.

The obvious limitations are the scale of brickwork and union requirements on union job sites. This article is designed to show types of brickwork practical to a landscape contractor. More complicated projects would require masonry subcontracts.

The Brick Institute of America (BIA) and the Associated Landscape Contractors of America (ALCA) assisted us in the development of this article. BIA has a vast

Continues on page 28

The City That Works Works With Woods

There's a lot of grass to mow in the Windy City, and Chicago's Park District uses rugged Woods mowers to help them cover a lot of ground.

But Woods mowers aren't designed just for large areas. In fact, we make mowers that cut swaths from 3 1/2 feet all the way up to 20 feet. Plus, we offer more rearmount and undermount models than any other manufacturer of tractor-powered mowers. New tractors or old, domestic or imported, Woods has a mower to fit the tractor and the job.

Send for complete specifications on the dependable line of Woods mowers today.

for 34 years the name to remember for quality and performance

WOODS

Division of Hesston Corporation
Oregon, Illinois 61061

Circle No. 157 on Reader Inquiry Card

BRICK WALLS *from page 24*

number of helpful brochures on brick masonry and works with ALCA on occasion to meet the specific informational needs of the landscape industry.

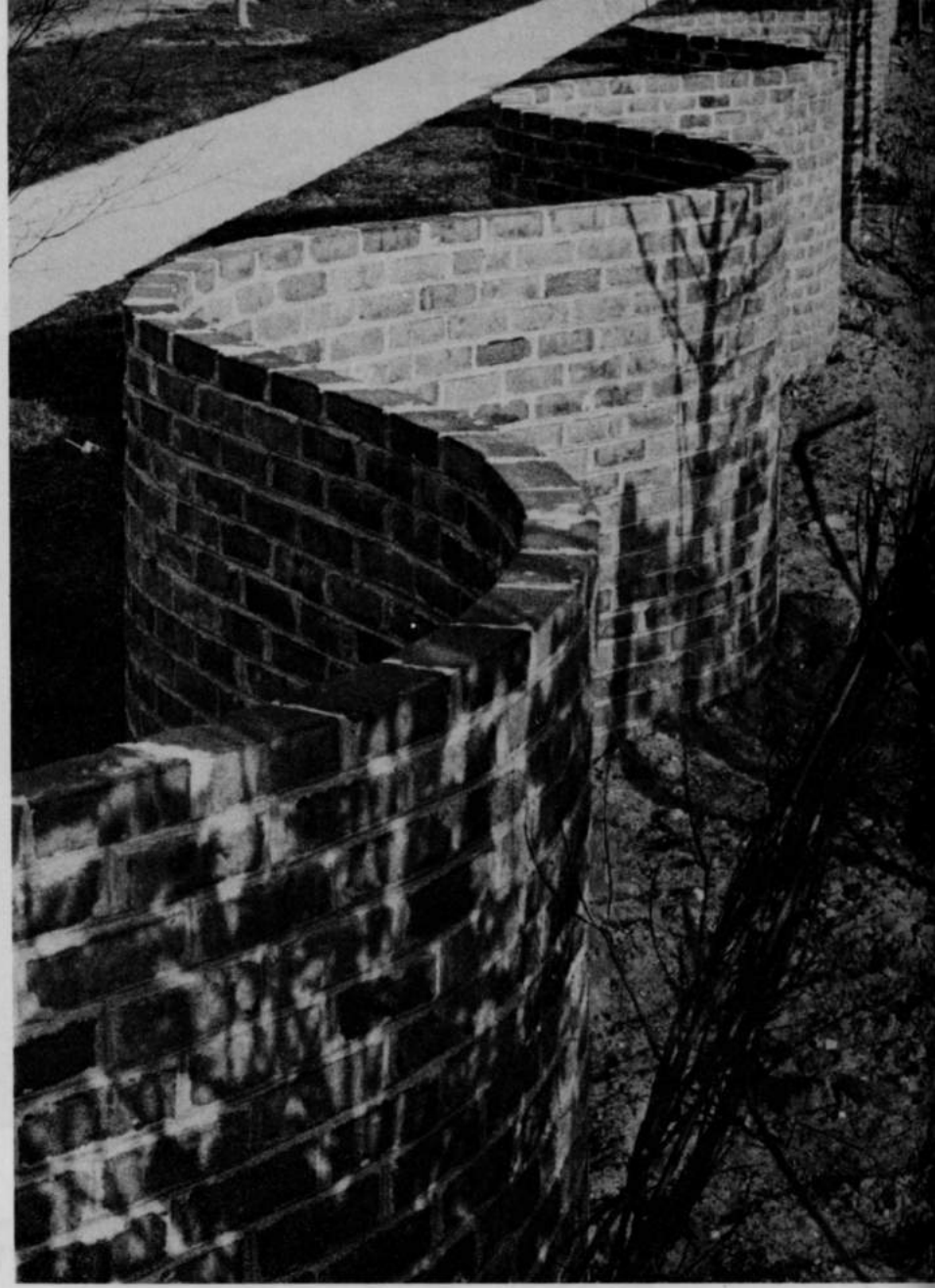
Design

Brick features must be designed for durability as well as appearance. There are a variety of patterns and types of brick providing a wide selection for landscape design. The landscape contractor should focus on simpler, classical designs and leave complicated ones for the mason. A landscape feature should not stand out in the plan, but rather blend with the plant material as one landscape. Resist the temptation of the customer to create a functionless monument and instead concentrate on the overall apperance and use of the area.

Both walks and walls are intended to guide traffic through a landscape. A creative plan will avoid straight lines and edges in favor of more natural curves, as in the bends of a brook. This immediately complicates matters due to the shape of most brick and is one reason for the popularity of molded concrete brick with landscape architects. Nevertheless, a few tricks provide the skill to use bricks for curves, ledges, and corners.

Recognize the difference between commercial and residential design. Commercial is very functional, efficient (low maintenance), and uses a smaller variety of plant material. Residential is more recreational, colorful, higher maintenance, and uses fewer numbers of elements with more variety. Residential design is more reflective of the owner than commercial.

In commercial design, the planter may have three or four plant elements. Whereas, a residential plant bed may contain ten or more types of plants. In commercial landscaping, the primary design element is the planter, whereas in residential the emphasis is on the plants. Landscape architects must lobby with the general contractor for plant considerations over structural ones. By the time the job gets to installation, the compromises (freedom to make changes) has been greatly reduced. In residential work, the selection may be left entirely to the landscape contractor, who knows variety and color are expected.



You are not working for a masterpiece brick structure, you are working for a complete landscape, plant and structures working together to achieve a naturally striking impact.

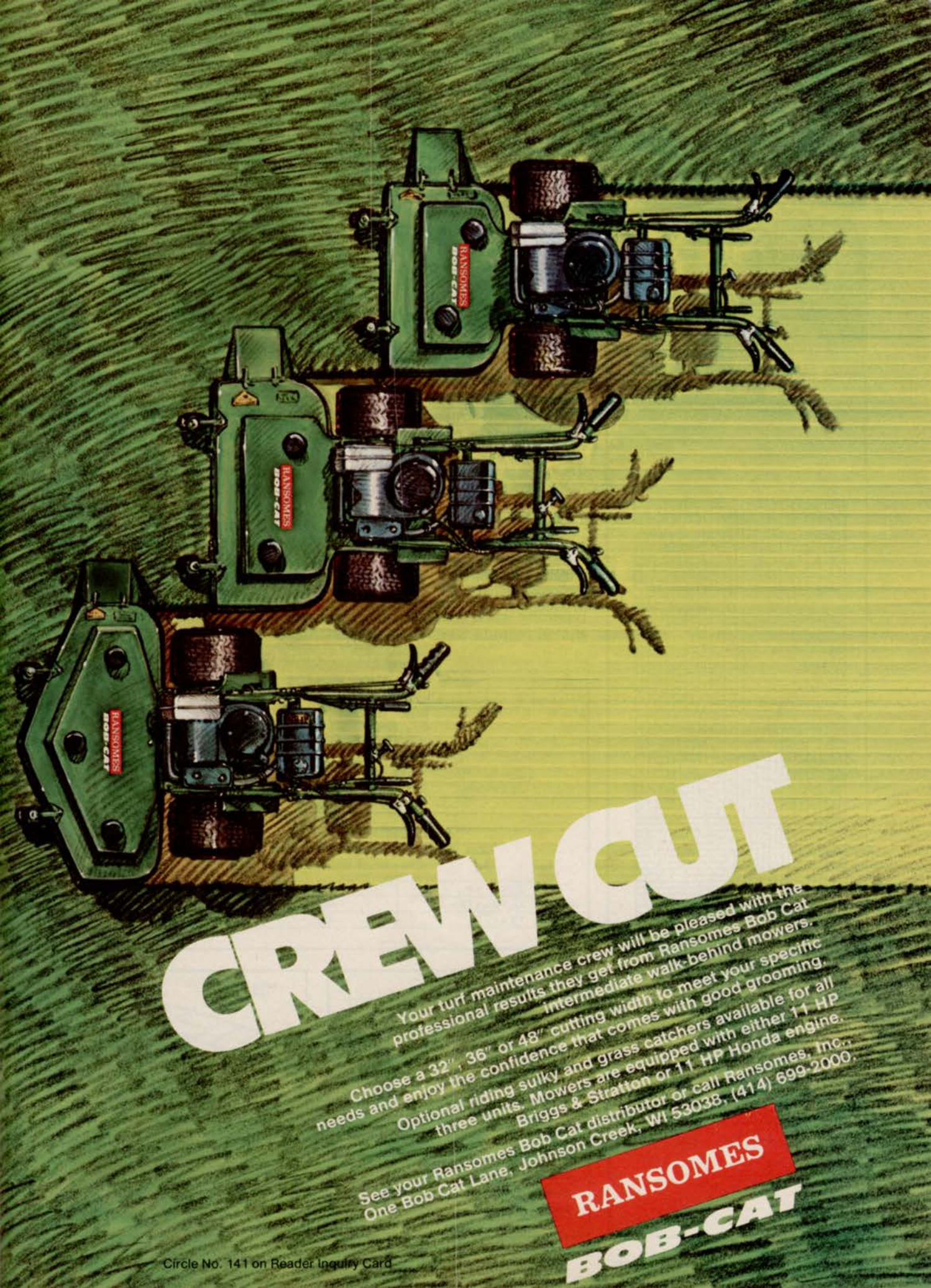
Construction

One major advantage of brick over paving, according to BIA's Charles Farley, is its ability to let water permeate the surface and drain downward. The shear volume of runoff caused by paving becomes a problem. Letting rainfall percolate in the area it falls is perferred to collecting large volumes of water and then adding structures to handle it.

Large bricked patios should not be mortared, if possible. Sand filler allows rainfall to drain where it falls. Large expanses of brick should be broken up with tree wells, planters, or steps. These elements, along with the perimeter, hold the brick in place. Metal and wood borders are common. These are simpler than using soldier course of brick set in concrete footers and pouring curbs to contain the brick.

Large bricked areas should have provisions for drainage, at the perimeter or underneath, or both. Dig trenches in the subsoil, lay tile, and cover with gravel. Place one or two inches of sand or screenings on top of the gravel as the base for the brick. Be careful of grades to avoid

Continues on page 28



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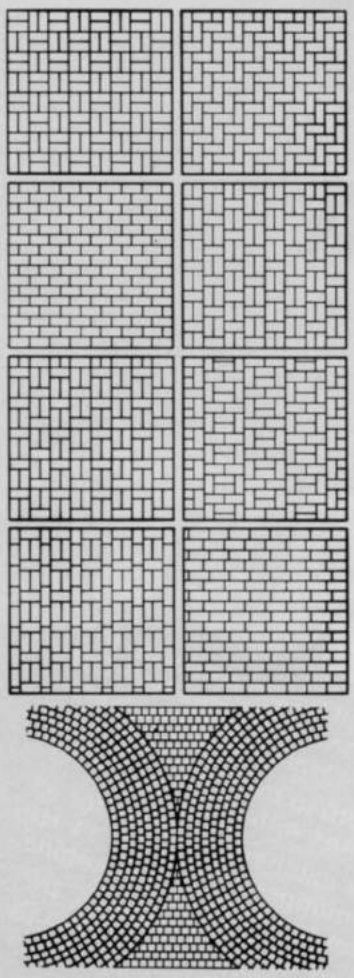


low points which will gather water. Crown the surface or slope it away from adjacent structures.

Heaving is a common problem for mortarless brick areas. Good drainage is the best prevention for heaving by subfreezing temperatures. A slope of ¼ in. per foot is recommended. Masons will roll or tamp the base before laying brick to reduce settling.

Walls must have a solid footing, especially retaining walls. Large retaining walls and brick planters should include weep holes to prevent a buildup of water behind the wall. To dramatize a wall try designs which create a textured look or curve serpent-like. Perforated walls permit air flow through the wall while still providing privacy and direction.

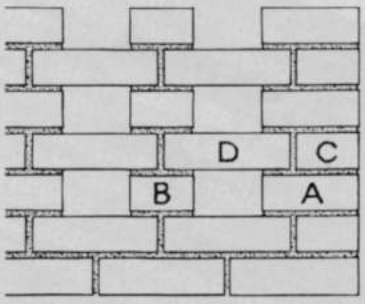
Footers should be poured a week before laying brick. They should be placed on undisturbed soil. Provision for electrical conduit should be made before pouring footers. Check with an electrician for local codes for conduit and placement of

Continues on page 29

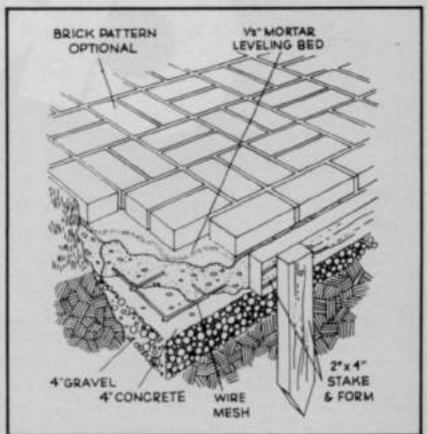
Estimating Brick & Mortar

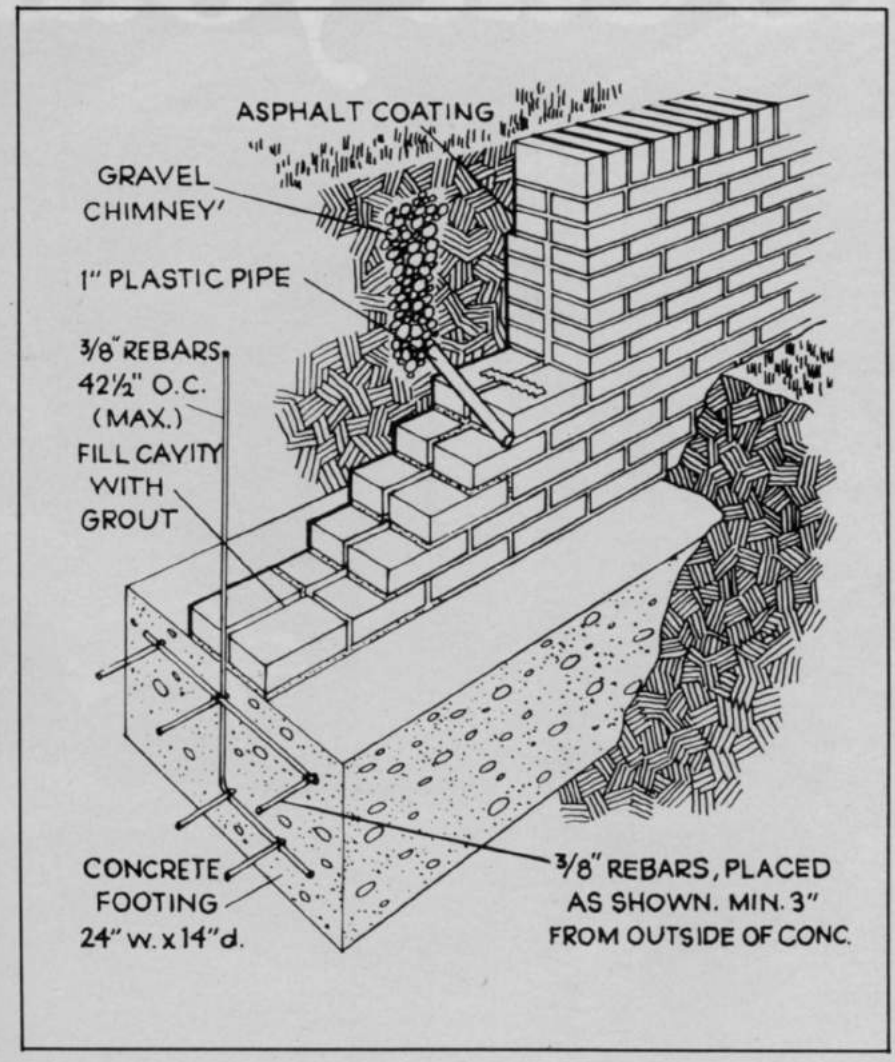
Walls				
Brick Size	Brick Per 100 sq. ft.		Cubic Feet of Mortar Per 1000 Brick	
	⅜" joint	½" joint	⅜" joint	½" joint
3⅝ x 2¼ x 7⅝	675		8.1	
3¾ x 2¼ x 8	655	616	8.8	11.7

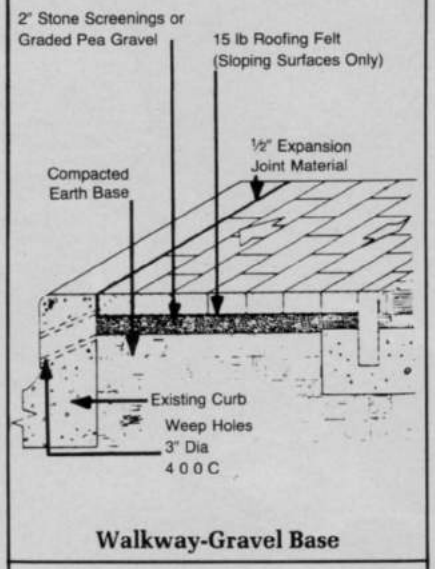
Pavements			
Brick Size	Brick Per 100 sq. ft.	Cubic Feet of Mortar Per 100 Brick (includes ½" bed)	
		⅜" joint	½" joint
2¼ x 3¾ x 8	400		1.84
2¼ x 3⅝ x 7⅝	450	1.49	
1⅝ x 4 x 8	450	No Mortar Required	



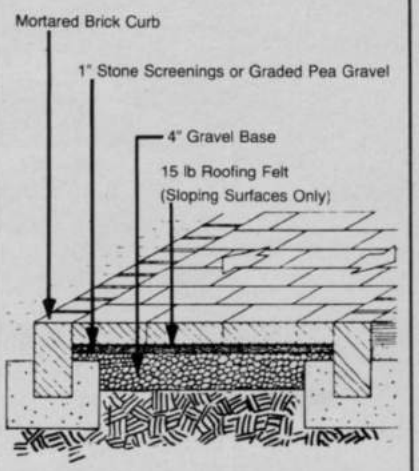
Solid and cut units form a screen pattern



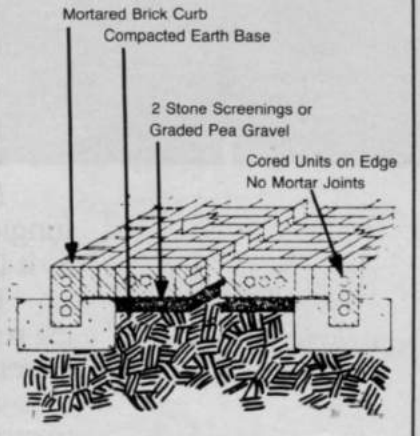

ASPHALT COATING
GRAVEL CHIMNEY
1" PLASTIC PIPE
3/8" REBARS 42½" O.C. (MAX.)
FILL CAVITY WITH GROUT
CONCRETE FOOTING 24" w. x 14" d.
3/8" REBARS, PLACED AS SHOWN. MIN. 3" FROM OUTSIDE OF CONC.


2" Stone Screenings or Graded Pea Gravel
15 lb Roofing Felt (Sloping Surfaces Only)
½" Expansion Joint Material
Compacted Earth Base
Existing Curb
Weep Holes 3" Dia 400C

Walkway-Gravel Base



Driveway - 2¼" Pavers



Driveway - Cored Brick on Edge

junction boxes. You may want to inset lighting fixtures in the wall, especially along walks.

Summary

Brick features need not be complicated to be attractive. A simple one-row border of brick for plant beds may be sufficient. Larger brick features may fall under local building codes. Have all the regulations down before taking on brick work.

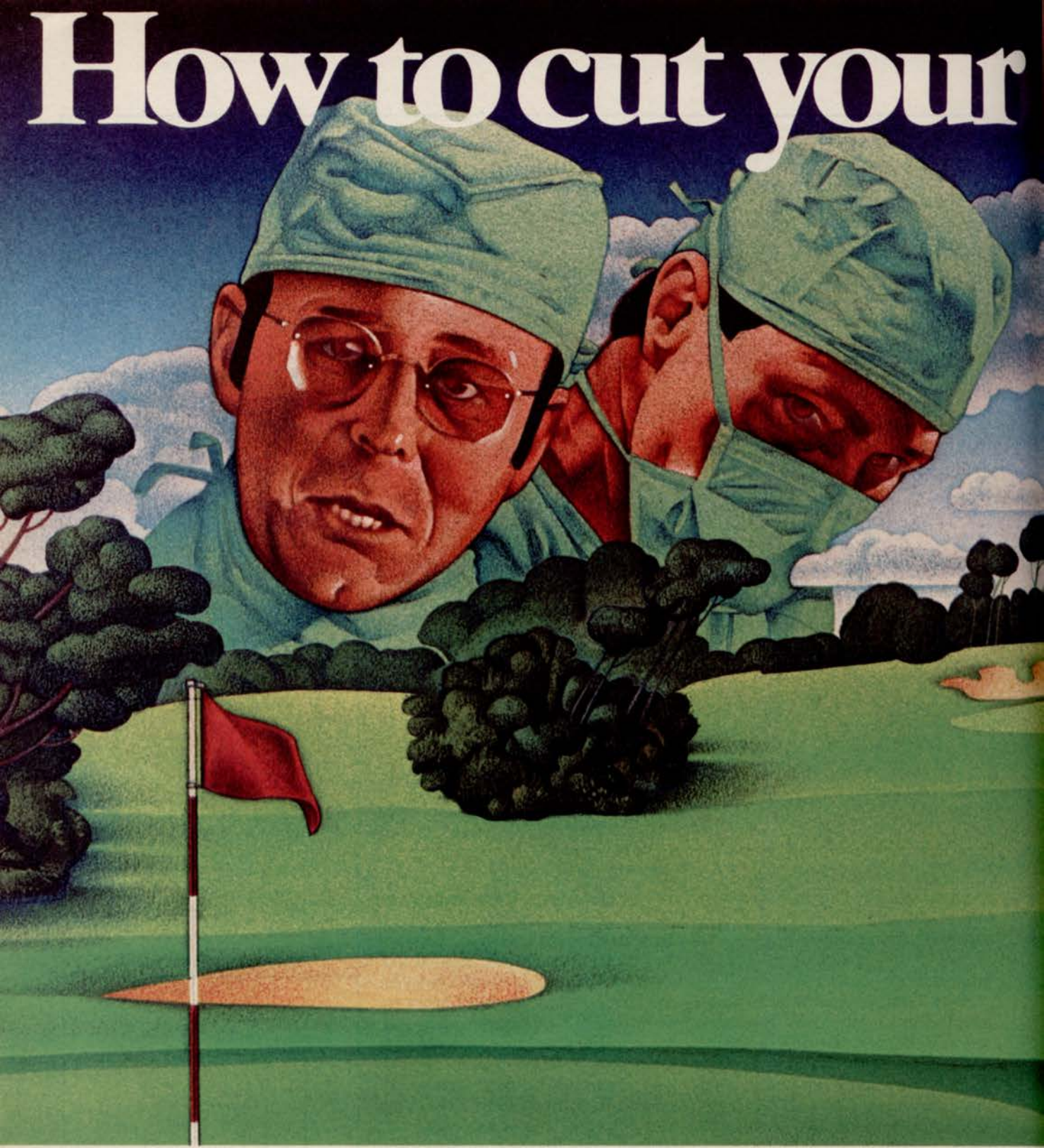
All brick is graded for durability. Used brick may have a special look but may lack durability. If the site already has a brick feature, try to match the existing brick as closely as possible taking into consideration fading. Order extra brick to make up for mistakes and damage during construction.

Don't practice at the customer's expense. Try out various tricks and designs before attempting to take on a brick project. Warn customers of impractical requests, such as brick posts at the end of a driveway that may limit access if spaced too close to each other. Avoid separate projects. Try to limit brick work to fit an overall landscape plan. All brick work should be done at the same time to avoid later problems with matching brick or mortar. If the job is to be done in steps, buy and charge the customer for enough brick for the complete job.

Brick landscape features, of course, may not work as well as wood features. Don't force the use of brick where wood will work as well. A split rail fence may fit the bill better than a brick wall.

Bricks are an important element of landscape planning. The landscape contractor should be familiar with all landscape elements. Masonry is one valuable tool in the contractor's kit. **WTT**

How to cut your



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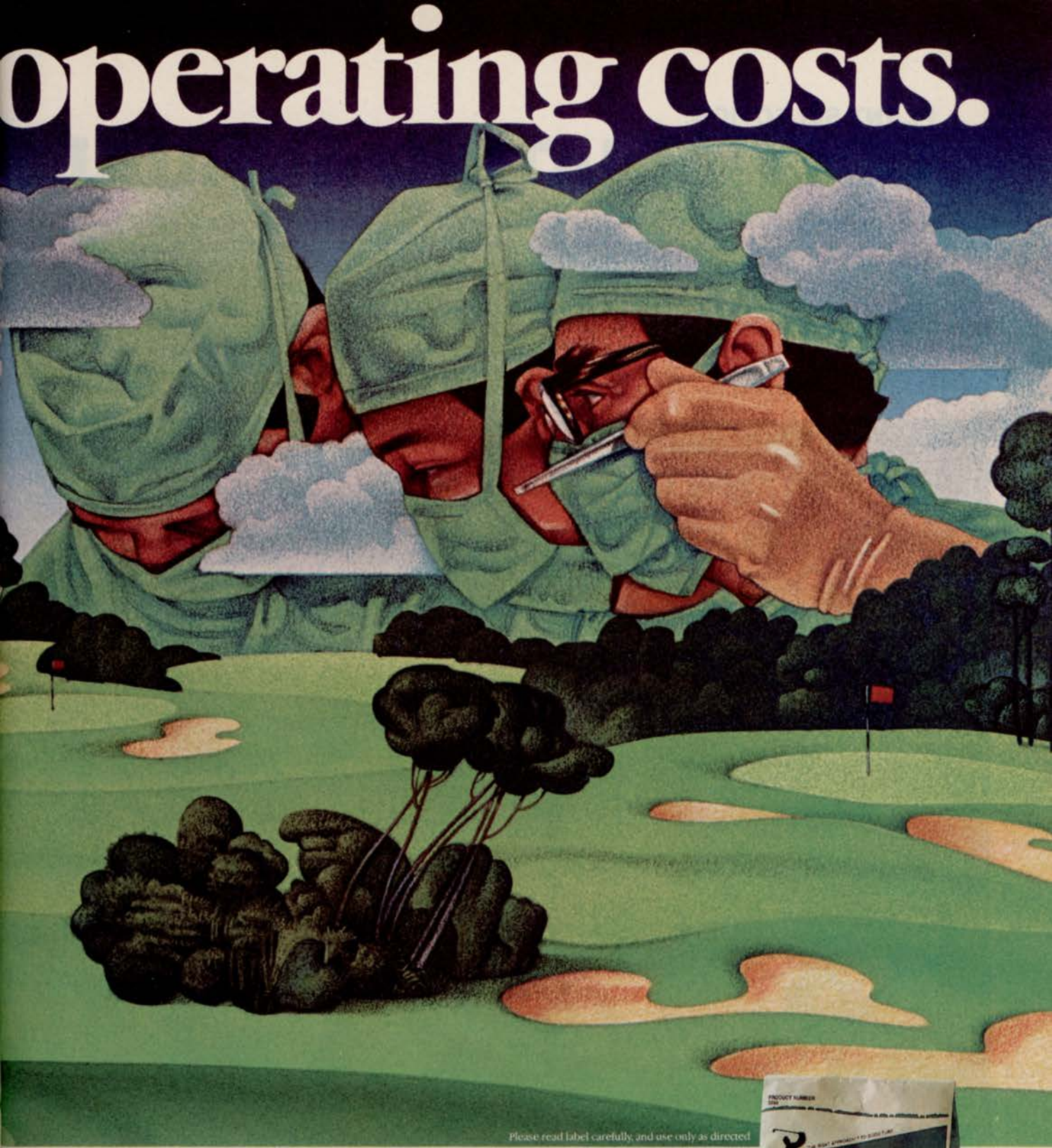

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PLANT SELECTION:

COORDINATING ANNUALS

Nothing says summer more than picnics, baseball games and beds of colorful annual flowers. There are many considerations to be made when designing an annual flower bed—location, color and color harmony, plant height, contour of the bed, style, shape of the plant, flower and leaf texture, and accents. In addition to all of these, plant selection is critical. If you don't choose annuals suitable to your growing conditions, all of your design efforts will be for naught.

Dry as a desert

Even if Mother Nature doesn't cooperate with much rain and there is no irrigation system to work with, annuals can still color up the landscape provided you choose the right types. For a touch of blue in a low growing plant suitable for massed beds, rock gardens or as an edging to larger plants, select the tiny and fluffy-flowered ageratum. One of the best annuals for ease of

Celosia (pictured above) adds a burst of color to this bed at Mt. Airy in the Pennsylvania Poconos. Ageratum (right) is known for ease of maintenance and will bloom non-stop without having its faded flowers removed.

WITH FLOWER BED DESIGN

maintenance, ageratum will bloom non-stop in sun or light shade without having to have its faded flowers removed. It is an excellent complement to another drought tolerant annual, the zinnia, which is available in almost any color of the rainbow except true blue.

Zinnias are a world unto themselves. There are single, double, cactus and pom-pom flowers available in solid, multi or zoned colors that bloom in full sun from early summer through frost. Faded flowers will need to be removed, however, to keep bloom at its maximum; clip stems as blooms open and zinnias make perfect and long lasting cut flowers. Different varieties of zinnias grow anywhere from six inches to 3½-feet tall, so are useful as edgings, in massed beds, or as screens, hedges and backgrounds.

One precaution must be taken when thinking of zinnias: make sure the location being considered has good circulation as zinnias are very susceptible to powdery mildew. A spritz of Tersan 1991 onto the zinnias when the turf is being treated will assist in alleviating this problem.

Think of dry, sandy soil and one annual immediately springs to mind—the petunia. Select the large flowered grandiflora or the smaller (but more of them) flowered floribunda petunia for an easy to grow massed or edging effect. Where conditions of poor and alkaline soil also exist, choose single rather than double flowered varieties, and if your weather conditions are extremely adverse, take the multifloras over the grandifloras.

About the only maintenance a petunia will need is a cutting back after the first flush of flowers fade to induce a heavy second flowering and forestall leggy plants.

An excellent companion to petunias is the heat-resistant verbena. Its colors cover the rainbow, so it is easy to choose a variety to complement one of the many solids, stripes or picotees of the petunia. A relatively new variety of verbena called "Sangria" is a deep wine red and a good choice for dry spots with red, white or blue petunias. Verbena can also be effectively used alone in beds, borders or rock gardens, especially where soil is poor.

For a touch of the bizarre and a bolt of strong color in a dry location, the celosia is the answer. Available in either plumed or crested varieties, celosia withstands poor soil and has a variety of uses in annual beds. Use celosia with care and discretion due to its bright colors and don't plant it outside until spring weather is reliably stable or it will bolt to seed and not bloom.

Continues on page 34

FLOWER BED *from page 33*

The long, hot summer

Heat resistance in annuals is a particular problem in the South and the Midwest and is something plant breeders are trying hard to build into new varieties. You would not want to select geraniums or marigolds, for examples, where summers are especially hot. Where these conditions exist, two annuals are perfect if you need a tall (4 to 6 feet) plant for sunny hedges, screening or backgrounds, and both also do well in dry and poor soils.

These are the cosmos and the spider flower *(Cleome)*. In their foreground, plant the daisy-flowered gazania, especially the attractive golden variety "Marguerite" with its contrasting black eye, or the multi-clored portulaca, which can also double as a ground cover, border or massing plant. Both of these annuals have something else in common—their flowers close up at night or on cloudy days.

Kochia is another annual that is useful as a hedge and background that tolerates extreme heat and dry soil, but it is rather nondescript until fall when its lacy foliage turns brilliant red. Flowers are all but invisible.

Although most plants that tolerate heat are also drought resistant, salvia is not, requiring a rich, moist soil. Used as an edging, massing or background plant, salvia has spikes of red, white or purple that do equally well in full sun or part shade. Use red salvia with caution as too much of it will be distracting to the overall design.

Situation normal

Where flower beds are "normal", regularly watered and fertile, one of the favorite annual choices is the marigold. Shades of cream, yellow, orange, bronze and red cover plants anywhere from six inches to three feet high from early summer to frost, especially if faded flowers are picked off. Don't be surprised if the tall "African" marigolds don't bloom until late summer, for they are photoperiodic and need short nights. It would be best to pick another annual than African marigold as a background to a marigold planting for season-long bloom.

The fragrant white, pink and purple blooms of the sweet alyssum are a good selection for edging marigold beds and have the same soil, light and water requirements. They're better than marigolds in one respect—faded flowers fall off cleanly and don't need to be removed manually.

The flowering tobacco (nicotiana), especially the recently introduced "Nicki" series that comes in a variety of colors, fits well in massed beds or borders in sun or light shade where watering is a regular activity as it prefers moist soil. Nicotiana grows easily from seed that drops from the flower; if you're lucky some of these plants will live through the winter and give you a head start on next year's flowers.

If you can provide frequent watering and fertilizing, deadheading of faded flowers and enjoy full sun, warm days and cool nights, geraniums can be used effectively. They're often best left for container accents, although some of the new hybrid types grown from seed make effective bedding plants.

In the shade

Shade is a problem in many landscape situations with dense and mature trees and large buildings, but is one successfully overcome with the right choice of annuals.

Wax begonias in tones of white, pink or red are about the best of the shade annuals because they are more drought tolerant than the others. Their neat, mounded appearance is desirable in formal borders and beds.

The inpatiens is one of the favorite shade annuals for its ease of care. Where soil is dry or sun hits the beds for long periods of time, impatiens will need watering to prevent wilt. Be cautious when choosing impatiens varieties as there are some with strong orange, coral or fuchsia hues that do not blend well with other colors. Not well known but nevertheless useful is vinca (periwinkle), not to be confused with the perennial ground cover of the same name. Flowers of pink, white or violet are often highlighted with a contrasting red eye.

The three favorite flowering shade annuals share common characteristics: all will tolerate some sun; all prefer a rich soil kept moist; and all have flowers that do not have to be removed as they fade, therefore lowering maintenance.

For something different in the darker shaded areas, try the bright foliage markings and variegations of coleus. As flower spikes form in late summer, they should be pinched off to keep the plant from going to seed and dying.

Where summers are cool

Dwellers of the Pacific Northwest and moutain tops across the country have to look to a different series of plants for their annual beds. By the same token, those plants that prefer cool temperatures will not grow in the rest of the country with the exception of using them in the south as winter, spring and fall plants.

Some of the best known and easy to grow of the cool-temperature annuals are:

annual chrysanthemum, with many colored daisy-like flowers, often with contrasting eyes or bands.

members of the *Dianthus* family (Sweet William, pinks and carnations), although breeders are developing heat resistant types.

nierembergia or cup flower, a ground cover of startling blue or violet with a yellow center. "Purple Robe" is an outstanding variety.

the petunia-like, heavily veined and brightly colored salpiglossis.

linaria, Rocky Mountain garland, African daisy, calendula, stock and monkey flower.

Select carefully

No flower bed design, no matter how carefully plants are selected for height, shape, texture, contrast and color, will be worth the paper it's drawn on if the annuals will not perform under your specific conditions. For more information about plants for your area, contact your seed supplier, bedding plant grower or Cooperative Extension agent. **WTT**

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DENSE AND SHOWY, COTONEASTERS MAKE A GOOD CHOICE

BY DOUGLAS CHAPMAN

Cotoneaster apiculata *(top photo) is an outstanding ground cover with dark glossy green summer foliage becoming a reddish maroon in the fall.* **Rockspray Cotoneaster** *(bottom photo) spreads in a fishbone pattern and is well-suited for rock gardens and home landscape.*

Cotoneaster is THE shrub of the Rosaceae family with exciting leaf color, yet obscure blossoms. Cotoneasters are native to Asia, specifically China and the Himalayas (Nepal). It should be noted that none are native to North America. Cotoneaster's outstanding qualities

Continues on page 40

Douglas Chapman is a horticulturist at Dow Gardens, Midland, MI.

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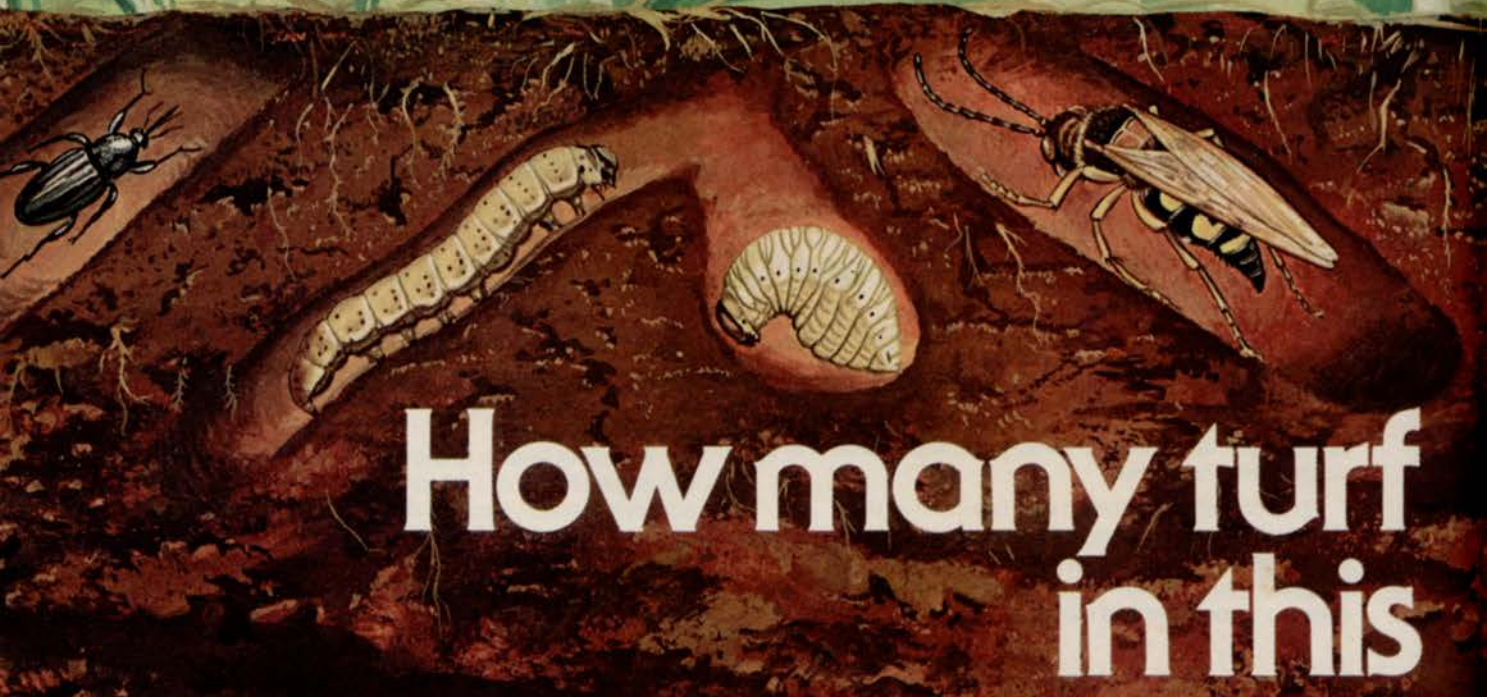

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insects are hiding picture?

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PS: You'll find the answer below.

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Answer: D·z·n Diazinon controls all twenty-three insects seen here.

include rich green foliage, outstanding fall leaf color, showy fruit, and unique habits of growth. When considering hardiness for the Midwest or Northeast, four cotoneaster species are outstanding. They include *Cotoneaster apiculata, C. horizontalis, C. divaricata,* and *C. zabelii.*

Cranberry Cotoneaster *(C. apiculata)* has an irregular mounding habit; becoming dense, almost impenetrable to foot traffic. It is an outstanding ground cover, being low and wide spreading with an ultimate width of three feet and spread of 6 to 8 feet. This mounding on itself is unique to this species. Cranberry Cotoneaster has a rather rapid rate of growth if adequate fertilizer and water are provided. It thrives in well-drained soils and establishes very rapidly. It is unique in that it continues to grow throughout the summer months as long as it receives adequate water and fertilizer (a useful fact in the container production of *C. apiculata).* The summer foliage is a dark glossy green, becoming a reddish maroon in the fall. The round leaf is about ½- to ¾-in. across, a truly beautiful detail. The pink flowers that appear in late May through early June are extremely small and

The profusely produced brilliant fruit is relatively large and . . . extremely showy. Cranberry Cotoneaster has an irregular mounding habit; becoming dense, almost impenetrable to foot traffic.

not too effective. The profusely produced brilliant red fruit is relatively large and, in fact, considerably larger than *C. horizontalis* and extremely showy. The main insect problem of *C. apiculata* is aphids during mid-summer with mites also building up during periods of hot dry weather. Of the ground covers, *C. apiculata* seems most resistant to Fireblight.

Rockspray Cotoneaster *(C. horizontalis)* is a slow growing, spreading ground cover, reaching two feet in height with a spread of five feet. The branches off the main stem are in a fishbone pattern, being perpendicular to the main stem and usually in one plane. Rockspray Cotoneaster is considerably slower growing, has a smaller leaf, and smaller pink flowers than Cranberry Cotoneaster. Further, it establishes more slowly, yet is more suited to rock gardens and individual home landscapes whereas Cranberry Cotoneaster is exciting in mass plantings, whether foundation or large commercial landscapes. Rockspray Cotoneaster can be planted in mass and eventually will become a barrier to foot traffic. There are many cultivars available. Dirr suggests that 'Little Gem' and 'Tom Thumb' (which may, in fact, be the same plant) are outstanding, dwarf, broadly-mounded, fine-textured, and extremely slow-growing. Hillier, on the other hand, suggests that *C. horizontalis'* 'Variegata,' a plant with the edges of the leaves being creamy white contrasted against the vivid green, is especially exciting and pleasing during the fall months with the white varigation contrasting with a dull red fall leaf color. These two cultivars are worth looking for in the trade and for landscape use.

Spreading Cotoneaster *(C. divaricata)* is one of the largest, most open forms, ranging 5 to 6 feet in height with an equal spread. It establishes quite rapidly after transplanting. Its texture is relatively fine. The leaves are a good, dark glossy green in summer with outstanding fall color, ranging from yellow to a deep glossy maroon. It holds its leaves so late in the fall that it can almost be considered a semi-evergreen. The rose-pink colored flowers are small and not effective. They are usually borne singularly or in units of three during late May through mid-June. The fruit are a medium to dark red which usually develop color in September that is effective through November. The individual rounded pome fruits are ¼-in. wide. In the landscape *C. divaricata* can form an exciting mass planting, border planting for home or commercial landscapes, and an outstanding formal hedge. Of all the cotoneasters, *C. divaricata* seems to be most insect and disease resistant with *C. apiculata, C. zabelii,* and, lastly, *C. horizontalis* in descending order.

Cherryberry Cotoneaster *(C. zabelii)* has been reported by Chadwick to be one of the truly outstanding contoneaster types. It is native to Central China. It has a rather upright habit, reaching six

Spreading Cotoneaster is one of the largest, most open forms, ranging 5 to 6 feet in height with an equal spread. It establishes quite rapidly after transplanting.

feet in height. The pinkish flowers are borne in clusters of 3 to 9. The summer foliage, again, is a dark green with fall color being generally yellow. The bright red fruit are borne in multiple clusters and contrast well with the fall foliar color. Cherryberry Cotoneaster does have some problems with mites and aphids. It is good when used in large area or commercial landscapes in mass plantings or as single specimens.

The cotoneasters are good as specimens or in mass plantings. Rockspray and Cranberry Cotoneasters, the ground cover types, are both small, providing almost impenetrable barriers to foot traffic. Certainly *C. apiculata* has to be considered the outstanding species, due to its rapid rate of establishment and growth, abundant fruit, habit of growth, and (except for aphids) is relatively pest free. Cotoneaster, like most plants in the Rosaceae family prefers full sun and well-drained soils. Of the upright types, *C. divaricata* is the most maintenance-free and shows reasonable resistance to Fireblight while not affected catastrophically by aphids or mites. These Asian imports fill an important niche for many plantings due to their dense habit, outstanding summer leaves, fruit, and generally good fall color.

WTT

Nobody comes close to the number of pop-ups and nozzles offered by Safe-T-Lawn®. Not Toro.® Not Rain Bird.® Not Anybody.

You shouldn't be surprised that Safe-T-Lawn has almost double the selection of the nearest competitor in plastic pop-ups and plastic or brass nozzles. Because Safe-T-Lawn was the first to build a line of plastic pop-up sprays, starting in 1967. Safe-T-Lawn has specification extras, too, such as optional ground support flanges and check valves.

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SAFE-T-LAWN®

HYDRAULICS ARE AN ASSET IF YOU UNDERSTAND THEM

Hydraulics *provide flexibility and reliability if understood.*

Imagine how complex and cumbersome turf equipment would be today without the hydraulic systems we take for granted. To perform the same functions, mechanical alternatives would add considerable size, weight, service requirements and operating cost.

For the operator, hydraulic systems not only have taken over most of the manual effort, they also have greatly improved and simplified control.

With just the touch of a lever on one of our sweepers, five cubic yards of debris can be raised 8-½ feet and discharged to a waiting truck.

Reels of many Jacobsen machines no longer rotate by traction. Hydraulic systems turn the reels at a selected rate, assuring a consistent cutting frequency independent of forward motion or wet or heavy turf.

Because of hydraulics, mower gangs on turf tractors steer with the machine and can be swiftly raised to negotiate narrow areas or for transport.

Hydraulics ease steering and the use of a three point hitch, raise and lower cutter decks and snow blades, and provide a form of automatic transmission with exceptionally simple control.

But even though hydraulic systems have become commonplace and preferred, some operators may not understand them. Knowing what they are and how they work can be a great advantage when the time comes for maintenance, troubleshooting and repair.

Advantages

The basic advantages of hydraulics over other forms of power transmission are many.

Simple Design—A simple combination of pumps, valves, motors and lines replaces more complex systems of mechanical linkages, gears, cams and levers, reducing maintenance costs and increasing reliability.

Compact Power—Hydraulic components provide more power in a smaller package than the mechanical or electrical devices that would perform the same function.

Flexibility—Because power is transmitted through tubes and hoses, hydraulic components can be located more advantageously.

Control—The power transmitted can be varied infinitely between wide limits for simple, precise and safe operator control.

Reduced Downtime—Built-in

Continues on page 44

By Tony Saiia, Chief Engineer and Ralph Sylvester, Jr., Product Training Manager, Jacobsen Division, Textron Inc.

Toro creates the ultimate low pressure, large radius Pop-Up.

"Matched Precipitation" nozzles at 1.3, 2.5 or 5.0 gpm.
The nozzle pops up a full 2" to get above tall grasses.
Adjustable arc: 45°-315° and full circle.
2"
Strong, stainless steel spring for positive, dependable retraction.
Riser seal helps keep out sand and debris.
Gear-driven rotary with adjustable radius up to 50'.
Utilizes proven Toro gear drive for reliability. And it's permanently sealed and lubricated to help assure smooth performance.
Works at pressures as low as 25 psi.
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Our new Toro Super 600 certainly lives up to its name: it's versatile, reliable and economical. And it's specially-designed to pass sand and silt right through it.

The Super 600 is also so remarkably compact, it's a breeze to install.

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*Manufacturer's suggested list price subject to local dealer option.

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Irrigation Division

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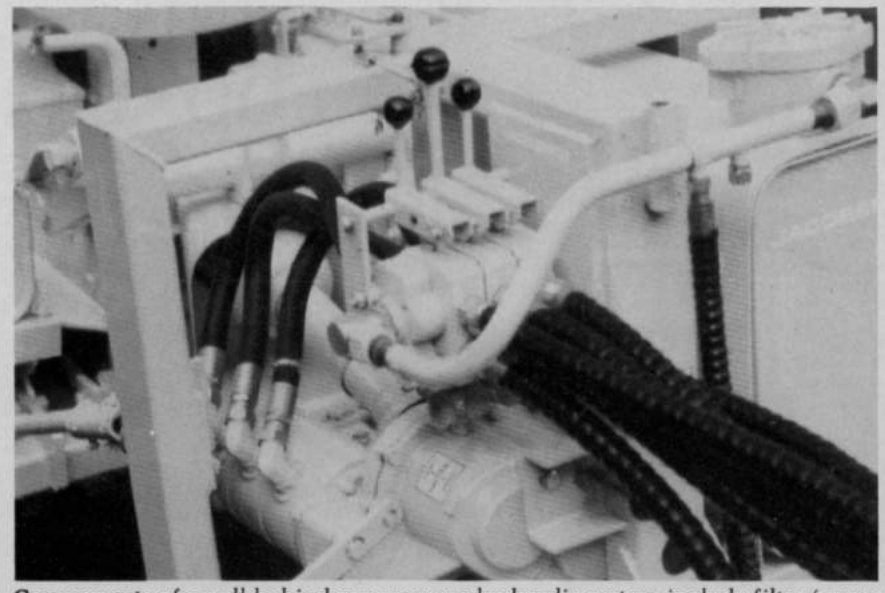
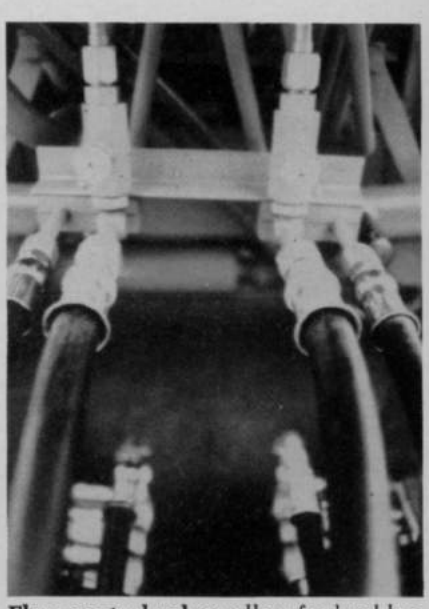


Components *of a pull-behind gang mower hydraulic system include filter (upper right), tank (below filter), valve bank with controls, and the pump (lower left).*



Flow control valves *allow for backlapping the reels while in place.*

relief valves provide overload protection keeping downtime and maintenance costs at a minimum.

Smooth & Quiet—Because force is transmitted through a fluid, hydraulic systems are exceptionally smooth and quiet in operation.

Basic definition

Basically, hydraulic power can be defined as the use of liquids under controlled pressure and flow to do work. Pressure exerts a force in the system, transmitting it in a confined liquid through hoses and piping. It is expressed in pounds per square inch. Flow causes motion. It is expressed in the number of gallons per minute that pass a given point.

System components

A basic hydraulic system is simple with fewer than a half dozen principal components.

Fluid Reservoir—The reservoir performs a variety of functions besides holding hydraulic fluid. Its walls are designed to dissipate the heat in the return oil. Baffles prevent the hot return oil from flowing directly to the outlet tube. They also help prevent turbulent flow which might allow air to mix with the oil, causing spongy operation and excess heat that could damage pumps. Often reservoirs are equipped with magnetic drain plugs and filters to capture dirt particles.

Pumps—The pump converts mechanical power into hydraulic flow under pressure. Its size, or displacement, and speed determine the amount of flow in the system which, in turn, governs the operating speed of the hydraulic motor or cylinder.

A design commonly used in systems requiring up to 3,000 pounds per square inch of pressure is the gear pump. Two meshing gears force the fluid through a discharge port and tubing to the hydraulics motor which reacts.

Valves—Valves control system pressure and flow direction. The most common type consists of a spool that slides back and forth inside a housing that has passages in it. As it moves it blocks or opens the passages, routing the fluid through tubing to and from various hydraulic motors.

Another design is the relief valve that protects the system from excessive pressure. It opens when a specific pressure is reached, allowing the fluid to return to the reservoir.

Cylinder/Motor—The hydraulic cylinders and motors convert pressure and flow into mechanical power for performing work.

A hydraulic motor is quite similar to the pump, except it works in the opposite sense. Operating at pressures up to 3,000 pounds per square inch, gear motors in turf care equipment are commonly used to power hydraulic reel mowers, rotary mowers, spreader and similar drives.

Tubing/Hoses—These connect the hydraulic components to form a system. While pipe and mild steel tubing are commonly used in mobile hydraulic systems, the latter is preferred because it is easily bent, and requires fewer sections and fittings.

Flexible hose is used where a line is subject to movement. Besides simplifying connections, it also helps absorb excess pressure within the system.

Hydrostatic transmission

One of the major applications of hydraulics is the hydrostatic transmission found in all our mowing machines except our larger turf tractors.

The heart of this transmission is its variable displacement pump of piston-type design. By simply moving a foot treadle, the pump's output flow can be varied from zero to a higher rate. The same foot control can change direction of the flow to reverse the rotation of

Continues on page 56

"Welcome to the South's next great winter golf green."
–Howard Kaerwer, Director of Turf Research at Northrup King's Research Center
From one of these unlikely looking clumps of ryegrass will come the next improvement in Northrup King Medalist Brand® Overseeding Mixtures. The South's most successful blends for over a decade.
Howard Kaerwer and the Northrup King research team have devoted thirty years to developing new grasses and perfecting blends. The results are products such as Medalist 7 Brand, the rugged, dependable ryegrass blend that lets *you* control transition. And new grasses like Delray, with lower nitrogen requirements and better tillering than any other ryegrass on the market.
When Howard isn't in the lab he's on the links talking to superintendents, conducting field experiments and collecting new grass samples to bring back for testing.
Has Howard's hard work paid off? Ten years after the introduction of Medalist Brand, 90% of 250 original customers were still with Northrup King. And since then, the number has grown to over 400 golf courses throughout the South.
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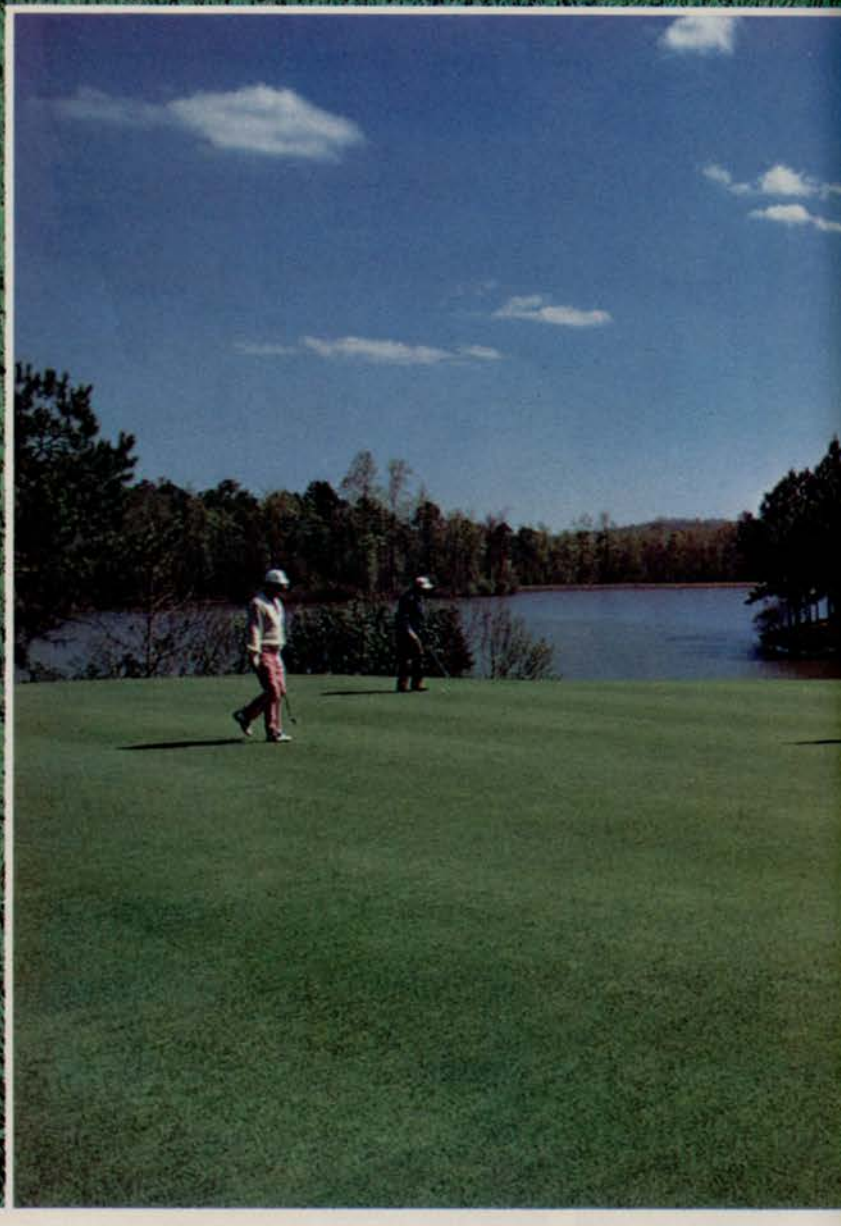

As turf professionals like you take a hard look at disease control and fungicide performance, a growing number are turning to BAYLETON 25% Wettable Powder fungicide.

Proven-in-use and highly recommended by university experts, BAYLETON provides turf protection you can believe in.

Unique two-way action both cures and prevents most fungus diseases—gives the turf care professional a valuable weapon to battle costly and unsightly fungus diseases.

Knocks out more diseases: BAYLETON offers the broadest spectrum of disease control of any leading turf fungicide. This includes tough diseases like dollar spot, brown patch, Fusarium blight, red thread, striped smut, certain rusts and pink and gray snowmold.

Cost-efficient: Residual activity of BAYLETON is as much as 14 days longer than other fungicides, so fewer applications are required. Chemical costs can be significantly reduced.

82102 SPG

Bayleton
5% Wettable Powder fungicide
For control of certain diseases of azaleas and turf.
WARNING.
Keep out of the reach of children
Net Weight 2 Pounds
STOP—Read the label before use.

Fast-acting: Systemic activity provides rapid, uniform protection of the grass plant against disease organisms.

Eases resistance worries: BAYLETON attacks more than one site of fungal activity, so resistance is unlikely. This helps relieve one of your most critical fungicide concerns.

Consider these unique benefits, and you'll see why BAYLETON can bring peace-of-mind to your turf disease control program.

Talk to your turf chemicals supplier today for more information. When you do, chances are you'll become a "BAYLETON BELIEVER."

Don't trust your turf to anything less.

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the motor. Both pump and motor can be in a single housing, or they can be separated in what is called a split system.

In operation, when the control treadle is near neutral, the transmission is in low range. As the treadle is advanced, the ratio is gradually changed to high range. Thus, when climbing steep grades or doing heavy work, it's important for the operator to ease up on the control, returning the transmission to low range.

With one control for speed and forward and reverse motion, a machine with a hydrostatic transmission is exceptionally simple to operate. In addition, vehicle speed can be varied independent of engine speed, improving maneuverability without affecting the performance of implements such as mowers, sweepers, etc. Another advantage is it can act as a braking system, increasing safety and operator control and reducing brake wear.

Finally, because this transmission is sealed, it can operate in dusty environments, providing long, trouble-free performance with normal maintenance.

In the future there will be even more applications of hydraulic systems, making turf care equipment safer, more versatile and easier to operate. They'll be lighter, too, with the development of smaller systems with increased pressure leading to more compact machines.

Electronic controls incorporated in hydraulic circuits will sense loads and instantly adjust valve or pump action, reducing operating costs.

And new component designs will result in even quieter systems for improved operator comfort and unobtrusive operation.

Troubleshooting

One of the best rules to follow when faced with a hydraulic problem is, don't assume anything.

Here's just one example of what we mean: because a failure anywhere in a hydraulic system always shows up first at the working end, the assumption too often has been that the cylinder or motor is malfunctioning. One of them may be at fault but so could a variety of other components, including some that are not related to the system itself.

Instead of the expense and downtime in changing a hydraulic cylinder, setting the engine at the proper rpm is all that may be needed.

In this example, like in others we could cite, the assumption compounds the problem since the system won't operate any better than it did before the replacement. And this means more time and money will be lost.

So, when faced with a hydraulics problem, the best place to begin is at the beginning, setting all assumptions aside.

For our purpose here the beginning is understanding system components, what can happen to them and how to maintain them. This is basic preventive maintenance. It's easily the simplest and lest expensive way to keep your equipment productive.

Reservoir—The reservoir does more than hold hydraulic fluid. Its walls act as heat exchangers, keeping fluid at an effective working temperature. What's important here is to make certain reservoir walls are free of grass, dirt, etc., since these act as insulation. A heavy buildup could lead to a breakdown of the fluid and suggest failure of various components, easily made but improper assumptions.

Filter—Its job is to remove contaminants, anything foreign to the fluid. Changing the filter as required or needed is the easiest and least expensive preventive maintenance you can perform. You simply spin off the old canister and spin on the new one. Its cost is minimal compared to replacing a valve bank due to excessive wear caused by contaminants.

How do contaminants get in the fluid? Many ways. Not all hydraulic systems are closed so they can be introduced by the ambient air. Since this could happen during manufacturing, it's a good idea to change the filter on a new machine after the first 25 hours of operation. If dusty conditions prevail during operation, you'll want to consult your manual for recommended frequency of change.

Contaminants also can enter inadvertently in other ways. For example, by not using a clean cloth for wiping the dipstick when checking fluid level, lint and dirt particles may be introduced.

Filter design is a science unto itself, with the micron rating carefully selected for a specific system. This means using the exact replacement is critically important.

Why? Consider the micron method of rating. We can see 40 microns on up. Obviously, a 10 micron filter is extremely fine, the size of one particle of talcum powder. If a rating of 10 is recommended and a 30 is used, you can expect a problem in the system at some time in the future. The 30 simply won't do the filtering job that's required.

Generally, the filter should be changed every 250 hours of operation. But the best advice is to follow the manual, and use the replacement available from the company that made the equipment.

Hydraulic Fluid—Unlike engine oil that receives contaminants from combustion, hydraulic fluid can last a long time if kept clean and not overheated.

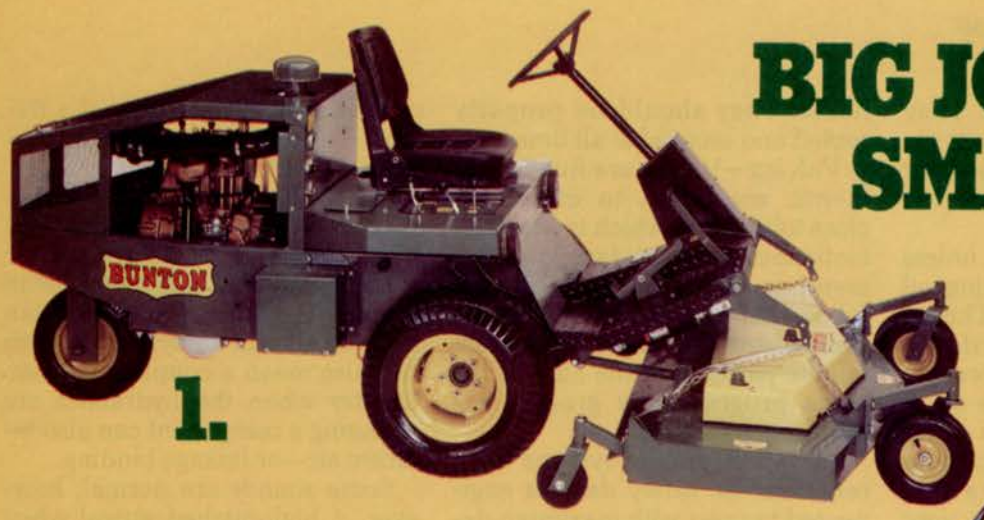
Because of advances in oil and seal technology, engine oils are more commonly acceptable for hydraulic use, with an SAE rating of SE or SF 10-30 performing well in many systems. Please note, however, that a straight weight oil, normally a 20 (or a 30 in hotter climates), should be used in the EATO hydrostatic transmissions—not a multigrade.

Watch for leakage. It could be caused by higher pressures due to water within the system. It shouldn't be there.

If you want to know what is going on inside a hydraulic system (or engine), for a nominal charge (sometimes it's free) you can have the oil analyzed at periodic intervals. Several major oil companies now offer an analysis that documents levels of various substances within the oil. For example, traces of valve metal and contaminants increasing with each analysis would indicate a valve problem ahead as well as the need for more frequent filter replacement. All you do is send a small vial of the used oil to a com-

Continues on page 58

BIG JOB OR SMALL...



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HYDRAULICS *from page 56*

pany offering the service. They take it from there. The thing to remember is to do it at the same hour interval so the data shows a progression.

As we mentioned earlier, unless broken down from overheating, oil will last for a long time. This in mind, the "filter buggy" was developed. This portable unit is brought to the machine to clean the oil. It typically uses a 3 micron filter which results in oil that is cleaner than when new. (Note: using a filter finer than recommended in your system will restrict flow to the point where it will bypass the filter, clearly undesirable.)

Pump—Remember, flow is related to the speed of the hydraulically operated device. Pressure is related to the force. Keeping these facts in mind makes trouble shooting easier. For example, if the speed of a lift is too slow, the problem may be in the pump and not in the cylinder.

Pumps, life valves, are subject to wear from contaminants in the oil. A substance so fine as to feel slippery can cause damage.

Lines—Whether flexible or rigid, always replace a line with its exact equivalent. Lines are engineered for specific flow and pressure. Installing one that is larger or smaller than the original changes the system—and changes the action so that a hydraulically powered component will, for example drop rapidly rather than ease down. Too small a line will slow motion. And a line with a thinner wall may rupture.

A common problem source with lines is vibration that loosens connections. When tightening, use this rule: make the connection finger tight, then tighten ⅛th turn more or one flat of the nut. That's all. Keep in mind, the threads of a fitting don't make the seal; rather, it's the taper of the flare and adapter, the ferrule of compression fittings or the O-ring that does the sealing. Overtightening can damage the seat, ferrule or O-ring, or break the ends of tubing or hoses, causing leakage. Speaking of leaks, remember if oil can get out, dirt can get in.

Obviously, you'll want to keep an eye out for chafing of flexible hoses. They should be properly routed and secured at all times.

Valving—Valves are fine instruments, machined to extremely close tolerances, which is why contaminants can be so damaging. Remember, like any fluid, oil will follow that path of least resistance. This means that slight wear from minute particles in the oil will become progressively greater, altering performance.

All our hydraulic systems have relief valves, safety devices engineered to open with maximum designed pressure is reached. The rule to follow is never, never tamper with them. Here's the reason: the entire system is designed to operate at a specific pressure. For example, a gang arm of our HF-15 mowing tractor operates at from 400 to 800 psi. Shimming up the relief valve to make arm operation faster could increase pressure by as much as 700 percent, but not increase speed, leading to pump, fitting or other component failure. Keep pressure at the recommended level by using a gauge whenever making adjustments in this area.

If you are really puzzled over valve performance, don't hestiate to call your distributor. Getting the answer to a few questions can avoid considerable damage, expense and time.

Motors & Cylinders—Like a pump, a hydraulic motor is subject to less wear because it runs intermittently. Contaminants, however, will take their toll by damaging closely meshing aprts.

Cylinders are more vulnerable, with rods exposed to dirt when they stroke out during operation. They should regularly be cleaned to keep contaminants out of the seal area. Often chemicals used on turf will deteriorate protective seals and rod wipers.

Inspection—Here's where a few moments can substantially reduce downtime and costs, if the operator knows what to look and listen for and follows a set routine.

For example, the dipstick can reveal more than fluid level. Whitish oil may indicate that water or air has gotten into the system. A gritty feel is a clear danger sign of contaminants. Dirt that has collected around fittings can mean a leak and call for a slight tightening of a fixture. Fresh oil spots where the machine is parked pinpoint problem areas. During washdown, hoses should be checked for chafing, bends or crimps.

On the audible side, pumps emit a metallic rattling sound that can indicate air is in the system. But this can also mean a coupling is loose. Chatter when the hydraulics are actuating a component can also indicate air—or linkage binding.

Some sounds are normal, however. A high-pitched squeal when activating a gang arm may merely indicate a relief valve has opened. The moan of a hydrostatic transmission is not unordinary.

Trouble-shooting—This is an area that is difficult to chart. It really begins with knowledge of hydraulics and builds through experience.

Most trouble-shooting should start with the process of elimination. When a system malfunctions, look for the obvious. For example, when a reel mower stops, it may be nothing more than a golf spike caught in the blades. Turn off the system and spin the reels by hand to dislodge the spike or whatever else might be caught.

But if the solution isn't the obvious, then move further into the process of elimination. In a system with more than one pump, try switching the lines. If the problem persists, you'll know it's not in the pump. Similarly, other lines can be switched to check valve banks and cylinders or motors. (Take care to clean connections before making the switch to avoid contamination.) Naturally, all components should be inspected for leakage, chaffing, etc. Keep in mind that oil thins when hot, finding wear passages and decreasing working pressure.

One helpful device is an instrument that measures flow and temperature between components. Learning to use it could save considerable time and unnecessary expense.

But most of all remember that hydraulic systems, indispensable to transmitting power, are highly reliable and virtually maintenance free—especially when they are understood and properly looked after. **WTT**

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Circle No. 156 on Reader Inquiry Card

VEGETATION MANAGEMENT

By Roger Funk, Ph.D., Davey Tree Expert Co., Kent, Ohio

Q: *How effective are wood ashes as fertilizer or as a replacement for lime? (Ohio)*
A: The nutrient value of dry, unleached wood ashes is about two percent potash and negligible nitrogen.

Wood ashes may be 20% to 50% lime with the ash of hardwoods such as oak, elm and beech containing one-third more calcium than the ash of softwood. With this composition, it would require 4,000 to 10,000 pounds of wood ashes to be equivalent to one ton of ground agricultural limestone. Due to the light weight of dry ashes, it would take considerable quantities to substitute for lime.

Q: *Is there any information available that will tell me how long it may take one man to mow one acre of grass using a 48" Yazoo mower? (Florida)*
A: Assuming effective width of cut is 42" and typical mowing speed 3.5 miles per hour, published estimates of time requirements to mow one acre with a 48-inch power unit range from 29 to 42 minutes. Of course, many factors will influence this estimate, including type and height of turf, obstacles and slope, and the operator's skill. You may find useful the "Guide to Grounds Maintenance Estimating," available from the Professional Grounds Management Society, located at 7 Church Lane, Pikesville, Maryland 21208.

Q: *Is it possible that the new sulfur-coated urea fertilizers, because they become chopped up during mowing, cause surges in growth and subsequent slowdown, thus thickening and thinning of turf? I notice a lot of bare spots on greens using this type fertilizer and wonder at the reason.*
A: The use of sulfur-coated urea on close-cut turf such as golf greens should be limited because of losses due to mower pickup and breakage of the sulfur coating which will release urea in the first week following application. Even with the use of superfine sulfur-coated urea and mowing without a catcher, at least 10 percent of the application will have its coating broken resulting in immediate release of the urea.

Several researchers have observed an irregular or spotted response of turf following sulfur-coated urea application which is attributed to the small number of particles applied per unit area and movement of the particles with rainfall or irrigation water.

Q: *What is the best grass or mixture to use in clay soil with medium care? (Georgia)*
A: Your location (Athens) is on Piedmont soil and in the warm, humid climate of turfgrass adaptation zones. A mixture of Tall fescue (90%-95%) and Kentucky bluegrass (5%-10%) can be used in your area. For names of specific cultivars most adaptable to your region, contact your local extension service.

Send your questions or comments to: Vegetation Management c/o WEEDS TREES & TURF, 757 Third Avenue, New York, NY 10017. Leave at least two months for Roger Funk's response in this column.

Q: *Last spring, the ground beneath several elm trees was littered with small twigs. Could this be caused by squirrels? Although squirrels were seen in the trees, they were never seen feeding on the branches. (Illinois)*
A: If you get up a little earlier in the morning this spring, you will probably find that the squirrels are cutting off the twigs and eating the elm seeds.

Q: *What will control bindweed between nursery rows? (Pennsylvania)*
A: Glyphosate (Roundup) has reportedly given better control than Amitrol-T.

Q: *If available, could you please publish information on the types of root systems of trees common to our area. I have not been able to find this information anywhere. (Indiana)*
A: The following list was obtained from West Virginia University. It is important to note that the list is for *initial* roots only. Many factors including genetics, soil conditions, stage of maturity and whether or not the tree has been transplanted can influence root development.

INITIAL ROOT SYSTEMS

Long tap roots without prominent laterals.
Most pines, including:
longleaf
sugar pine
red pine
jack pine
pitch pine
shortleaf
Oaks, such as:
red
white
chestnut
black
Hickories
Eastern red cedar
American chestnut

Prominent laterals, short taproots
balsam fir
Norway spruce
red spruce
Sitka spruce
Eastern hemlock
Western hemlock
Southern cypress
sugar maple
yellow birch
American beech
Southern white cedar (after first year)

Long tap roots and prominent laterals
black walnut
yellow poplar
black locust

Plastic root systems (easily influenced by soil environment)
red maple
boxelder
white pine (based on recent information)
Southern white cedar (first year only, then lateral system)

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Lots of lawn care jobs you do are easier and faster with Roundup.

Wherever you use it, Roundup® herbicide helps make weed control around your customers' homes fast, easy and effective. Just one application of Roundup controls tough labeled weeds right down to the roots, so they won't grow back. That means less need for time-consuming repeat treatments.

And Roundup has no residual soil activity, so it can't wash or leach from treated areas to injure desirable vegetation.

Whether you apply Roundup with a backpack sprayer or a hand-held wiper, it effectively controls weeds *wherever* they grow. Around shrubs and bushes. In sidewalk cracks. Along driveways. At the base of trees. Along fences. In and around flowering ornamentals. Spot lawn renovation. Edging around obstacles. You name it—there's virtually no limit to the uses of Roundup!

So reach for Roundup before you begin your next lawn care job. It'll help make weed control faster and easier—which can mean more profit for you.

FOR A FREE GUIDE TO ROUNDUP, CALL 1-800-621-5800 TOLL FREE. IN ILLINOIS, CALL 1-800-972-5858.

VERSATILE

EFFECTIVE

Monsanto

Circle No. 133 on Reader Inquiry Card

LETTERS

Tax loss appraisals

In Roger Funk's January 1982 column there is an important error. In answer to a question: "Where can I obtain more information on the losses that can be deducted from Federal income taxes?" Dr. Funk says this: "The IRS will accept appraisals made by consulting arborists approved by the Council of Tree and Landscape Appraisers in Washington, D.C."

This is not true. The Council is not a membership organization and does not have any kind of list of "approved" consulting arborists. CTLA may be swamped with requests from tree and landscape professionals to be included on this non-existant list. And, the IRS may come knocking at our door to find out what we are doing.

CTLA does not certify anyone as an appraiser. It's service to the Green Industry is a system which enables professionals to determine a reasonable value for trees in case of damage or destruction. We make this guide available to anyone interested. The system was developed by leading horticulturists and therefore is well respected.

Paul Dawson
Director of Communications
Council of Tree and Landscape Appraisers
232 Southern Building
Washington, D.C. 20005

The meaning of native

I note in Douglas Chapman's article on native shrubs (Dec. 1981) a statement that *Symphoricarpos albus* was brought to this country in the late 1800's. This indicates that it is present in the wild only as an escape. It is actually indigenous to north-eastern North America and thus appropriately included as a native.

If it were true, as Chapman indicates, that it was introduced, it has no place being included as a "native shrub." This question becomes further complicated when one thinks of plants native to national political boundaries or endemic to smaller regions, based on soil and climate.

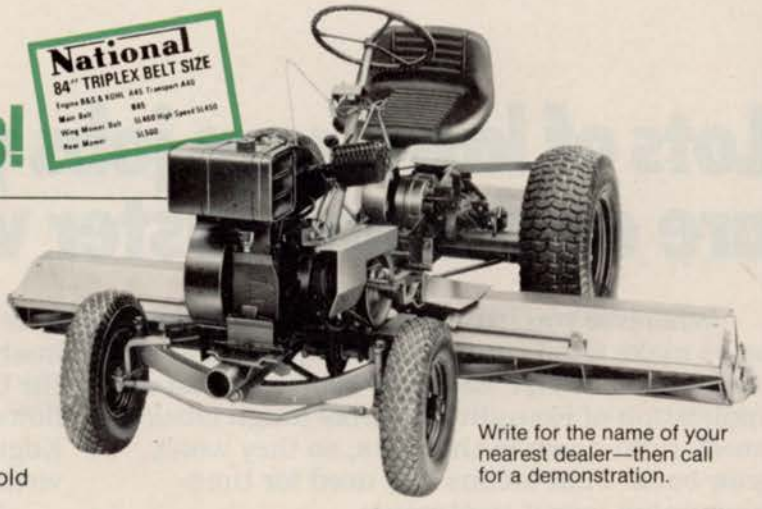
Another question concerns the use of the word "backbone." I can not imagine structuring either a home or commercial planting around any of the four shrubs described.

I certainly support Chapman's notion of using native plants despite the quibbles.

Charles W. Cares, Professor
Landscape Architecture
The University of Michigan
Ann Arbor, MI 48109

Nursery Marketing Council
We're participating
...all the way!

Every National has it...
Little decal, Big Savings!



More than telling you belt sizes used on National mowers, the decal tells you that these are standard, off-the-shelf items available from any local industrial supplier, not a special, high-priced part you must order from the manufacturer. And there are a lot more savings with a National...

- **Greater fuel economy.** 44% to 62% less fuel consumption than power robbing, hydrostatic type rotary mowers.
- **National's initial cost is less** than that of mowers sold to do the same job.
- **One-third to one-half the cost** of maintaining a National versus competitive models because of its easy accessibility.

Write for the name of your nearest dealer—then call for a demonstration.

- **Model 84 gets the job done faster** by cutting a swath a foot wider than a rotary.
- **Quality construction.** More years of service. For example, we still cut our own gears out of solid, quality steel blanks.

MODEL JTS-180

MODEL 68

Building functional quality since 1919

NATIONAL MOWER

NATIONAL MOWER COMPANY
660 Raymond Avenue, St. Paul, MN 55114
612/646-4079

Circle No. 136 on Reader Inquiry Card

Banvel® 4-S Herbicide gets a powerful new tank-mix label. So you'll get all the extras.

Banvel® 4-S Herbicide has a new label that gives you greater application flexibility. You can now tank-mix Banvel 4-S to add more weeds to your controlled list. And to get all the extras you want in a tough, dependable herbicide.

Extra options for tank-mixing.

You can now use Banvel 4-S Herbicide in a variety of combinations. Tank-mix it with 2, 4-D. Or MCPA. MCPP. Even bromoxynil. More than ever, Banvel 4-S fits your tank-mix preferences.

Extra control in a weed and feed program.

With its new label, Banvel 4-S can be applied using either sprayable liquid fertilizer or water as the carrier.

Extra broadleaf weed control.

The new Banvel 4-S label puts you in control of more weeds, including many of your worst problem broadleaves.

Extra application flexibility.

You're no longer limited to one application per year with Banvel 4-S Herbicide. Used at low rates, Banvel 4-S can be applied in retreatment programs up to two pints per acre during a growing season. Plus, Banvel 4-S can now be used on non-cropland, brush areas, fencerows and roadways, as well as turf and lawns.

Check all the extras you get with Banvel 4-S Herbicide's powerful new tank-mix label. See your lawn or turf chemical supplier today for more information.

*Banvel Herbicide is a registered trademark of Velsicol Chemical Corporation. Before using any pesticide, please read the label.

VELSICOL
CHEMICAL CORPORATION

Velsicol Chemical Corporation,
World Headquarters
341 East Ohio Street, Chicago, Illinois 60611

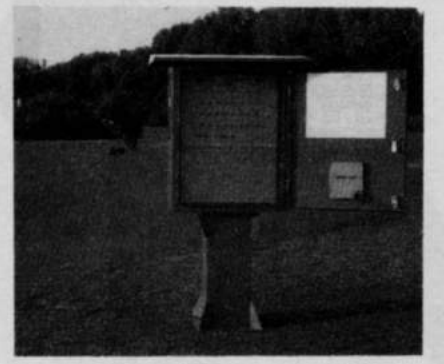
Circle No. 154 on Reader Inquiry Card

PRODUCTS

National Irrigation Specialists have developed a hand held electronic instrument for checking solenoid valves, wiring, and clock contracts in irrigation

systems. The Checkmate comes complete with test cables, battery recharger and functions for approximately 20 hours on a single charging.
Circle No. 160 on Reader Inquiry Card

Hugh McKay Associates is offering management services in computerized resource management systems, computerized landscape maintenance and golf and recreation management. The Resources Management System for ir-



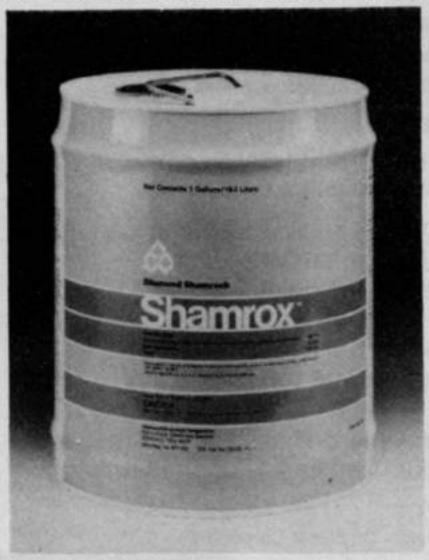
rigation controls quantities of water and fertilizer, pressure limits, flow rate limits, and soil moisture. The Landscape Maintenance System handles inventory, schedules operations, management analysis, operating cost analysis and allocation of resources.
Circle No. 161 on Reader Inquiry Card

Vermeer Manufacturing Company has recently introduced a 30-horsepower utility trencher with four-wheel-drive, power steering and a Wisconsin gas engine or 1.196 liter engine. It digs 5-16-inch diameter, down

to 60-inches. The four way backfill blade, with replacable grater edge lifts, tilts and angles 30 degrees left and right.
Circle No. 162 on Reader Inquiry Card

T.H. Agriculture and Nutrition Company has relabelled Dimilin W-25 insecticide to clear its use at lower rates, to allow it to be used in sparsely inhabited forest areas, and to permit its sale to certified applicators. According to the manufacturer, Dimilin W-25 controls Gypsy Moth larvae with little or no effect on parisities or predators of the moth.
Circle No. 163 on Reader Inquiry Card

Diamond Shamrock has announced the availability of two MCPA herbicides, Vacate and Shamrox. Shamrox is recommended for the control of weeds on fence rows and roadsides. Vacate



was previously marketed under the MCP Amine 4 label and is applicable to lawns and golf courses.
Circle No. 164 on Reader Inquiry Card

Smithco's Performer is a hydrostatic front powered mower with an extra wide single rear wheel for a smaller turning radius. It has a choice of two engines: the Briggs and Stratton 18

horsepower twin cylinder air cooled, or the Kohler 23 horsepower twin cylinder cast iron engine. The mower also features air flow with rear heat discharge and seperate hydraulic oil cooling reservoir.
Circle No. 165 on Reader Inquiry Card

Vermeer Manufacturing Company now has a feed stop gate on its 1600 brush chipper. The system shuts down the ignition and power when any one of

three activator bars are tripped, as well as dropping a spring loaded gate in front of the cutting rotor.
Circle No. 166 on Reader Inquiry Card

Reinco has adapted its TM7-30X hay mulcher to accomodate diesel power

Continues on page 68

"Mitsubishi tractors–the tough team that's never sidelined."

Bum Phillips, Head Coach, New Orleans Saints

In my business, I demand pro performance, the first time and everytime. That's why I want to tell you about the Mitsubishi line of two and four-wheel, mid-size tractors. Tractors built tough, to tackle all your landscaping and turf maintenance jobs, reliably and economically year after year.

Whether it's the compact Beaver, the economical Bison Diesel or the 38 hp, rugged Stallion, all Mitsubishi tractors can handle the implements you need for mowing, loading, grading, snow removal and lots more. And Mitsubishi's multi-cylinder, water-cooled, diesel engines keep fuel consumption low and performance consistently high.

Designed with you, the grounds maintenance professional in mind, Mitsubishi tractors have tough-job features like a differential lock for greater traction, live hydraulics for really accurate implement control and multi-speed PTO for equipment flexibility.

Bison Diesel
30 hp

So, as one pro to another, if quality performance is the name of your game, check out the winning team of mid-size tractors built by the pros—Mitsubishi.

MITSUBISHI

Built by the PROS

For more information, see the yellow pages for your local dealer or write to Sumitomo Corp., Mitsubishi Tractor Division, 345 Park Ave., New York, NY 10154, (212) 935-8826.

Circle No. 131 on Reader Inquiry Card

units. According to the company, the diesel capability will make it the most efficient medium sized hay mulcher on the market.

Circle No. 167 on Reader Inquiry Card

O.M. Scott and Company has brought out fungicide 7 to control dollarspot, brown patch and rust. It was developed for use on bentgrass, annual bluegrass,

Kentucky bluegrass, perennial ryegrass and fine fescue. It is a granular product which may be applied in a drop-type rotary or Lely spreader.

Circle No. 168 on Reader Inquiry Card

The John Deere 650 is a compact utility tractor providing 14.5 hp at the PTO. Powered by a 2-cylinder, water-cooled 52.1 cubic-inch diesel engine, it features a sliding gear transmission with eight forward and two reverse speeds, and a ground clearance of 11.3 inches. Power steering and mechanical front-wheel drive are optional.

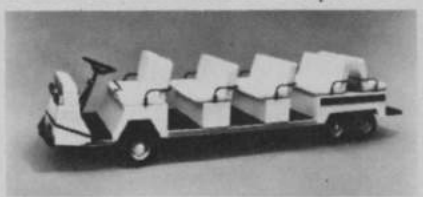
Circle No. 169 on Reader Inquiry Card

Vrismo Manufacturing Inc. is offering the Mighty Max flail mower that pulverizes light brush as well as acting as a

lawn mower at the same time. It comes with standard scoop knives, that cut a width of 46 or 58 inches, and can be pulled by a low horsepower tractor.

Circle No. 170 on Reader Inquiry Card

Eagle Vehicles is distributing a line of commercial cars under the Pargo name. The line includes People Mov-



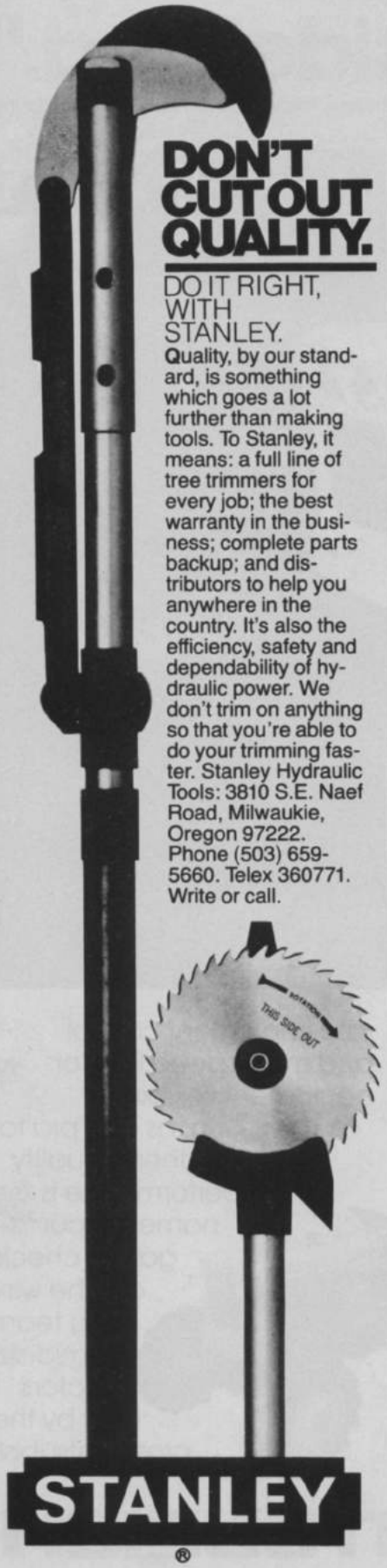
ers in four, six or ten passenger models. The line also includes the Bar Car hospitality car with drink wells and storage compartment.

Circle No. 171 on Reader Inquiry Card

Uniroyal Chemical is once again marketing Maintain® growth retardants for trees, shrubs, vines and grass. The first product to be reintroduced will be Maintain CF-125 an emulsifiable concentrate for spray type applications.

Circle No. 172 on Reader Inquiry Card

Continues on page 70


DON'T CUT OUT QUALITY.
DO IT RIGHT, WITH STANLEY.
Quality, by our standard, is something which goes a lot further than making tools. To Stanley, it means: a full line of tree trimmers for every job; the best warranty in the business; complete parts backup; and distributors to help you anywhere in the country. It's also the efficiency, safety and dependability of hydraulic power. We don't trim on anything so that you're able to do your trimming faster. Stanley Hydraulic Tools: 3810 S.E. Naef Road, Milwaukie, Oregon 97222. Phone (503) 659-5660. Telex 360771. Write or call.
ROTATION
THIS SIDE OUT
STANLEY
®

Circle No. 148 on Reader Inquiry Card

Pump 42,000 GPH with Moulton's Torrential.

Since 1948

The ideal golf course pump for low spots that flood early — ditches — water hazards — and other problem areas. This TORRENTIAL unit is self-powered, self-priming, floating and portable. Will handle any object that will pass through a one-inch screen opening.

moulton irrigation industries inc.

Somerset, Wisconsin 54025 • Phone: 715-247-3321 • MN Phone: 612-439-8904

Circle No. 135 on Reader Inquiry Card

Nitroform®
paints a pretty picture

Nitroform® provides a consistent 38% nitrogen that's released by soil bacteria slowly and predictably — *just when it is most needed to make turf and ornamentals green and healthy. And Nitroform continues this slow, steady release to sustain growth for over six months (even during periods of sparse rainfall).*

You'll find Nitroform nonburning, nonstreaking, nonleaching. It's easy mixing and clean handling, too. This versatile nitrogen source is available in Blue Chip® for dry applications, Powder Blue™ for liquid use, and it can be mixed and applied with insecticides and fungicides.

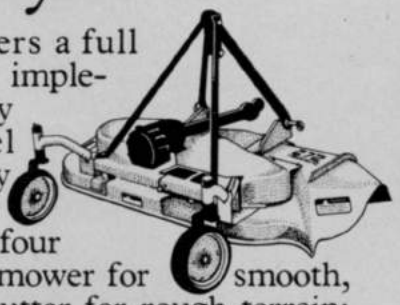
When you're buying a complete fertilizer be sure to check the label to see that it contains Nitroform, the most efficient source of Water Insoluble Nitrogen.

Nitroform can do beautiful things for your business.

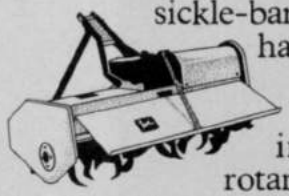
BFC CHEMICALS, INC.
4311 LANCASTER PIKE, WILMINGTON, DE 19805

Circle No. 107 on Reader Inquiry Card

Even if you don't own a John Deere tractor, you can still have John Deere behind you.

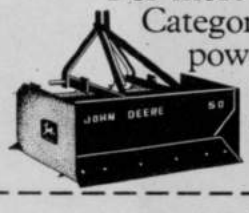


John Deere offers a full line of quality-built implements to fit nearly any make of small diesel tractor with a Category 1 3-point hitch. For example, there are four mowers: a grooming mower for smooth, even cuts; a rotary cutter for rough terrain; a flail mower for trashy conditions; and a sickle-bar mower for roadsides and hayfields.



For landscaping, John Deere has hitch-mounted implements including a rotary tiller, a box scraper, a rear blade and a post-hole digger. Of course, we also have a full line of hitch-mounted farm implements. So even if your tractor isn't green, you can make it do more when you put John Deere behind it.

For more information about John Deere Category 1 3-point hitch implements power-matched to small diesel tractors, see your John Deere dealer or send for a free leaflet.



To find out how John Deere implements can increase the versatility of your small diesel tractor with a Category 1 3-point hitch, send for a free descriptive folder. Mail this coupon to John Deere, Dept. B147, Moline, IL 61265.

Name_____

Address_____

City_____

State_____ Zip_____

WT

Nothing Runs Like a Deere®

JOHN DEERE

Circle No. 111 on Reader Inquiry Card

PRODUCTS *from page 68*

Mathews Company presents a heavy duty flail machine featuring a 8-⅝" diameter rotor, reversible mowing knives

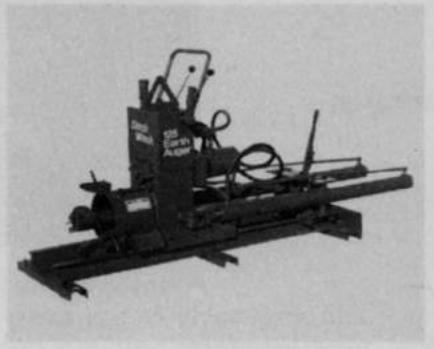
and 13-inch caster wheels. P.T.O. drive and floating links permit free vertical and lateral movement.

Circle No. 173 on Reader Inquiry Card

The Jacklin Seed Company suggests using Reubens Canada Bluegrass for roughs and marginal maintainence areas. Reubens produces a low-growing, dense turf that can help prevent soil erosion and water runoff according to the company. Its aggressive rhizome growth and tiller development are claims for Reubens as an effective choice in moderately dry, barren soils.

Circle No. 174 on Reader Inquiry Card

Ditch Witch now has the model 125 Earth Auger horizontal boring unit which can bore holes with diameters of 3- to 8-inches to lenths of 140 feet. The



unit may be powered by a Ditch Witch Power Pac 12 or several underground construction vehicles equipped with manifolds.

Circle No. 175 on Reader Inquiry Card

F.E. Myers Co.'s new 500 gallon Sprayer Series are equipped with fiberglass tanks, built-in baffles and splash-proof mechanical lock down lids. Frames of heavy-duty steel channel with steel tank supports have been

Continues on page 74

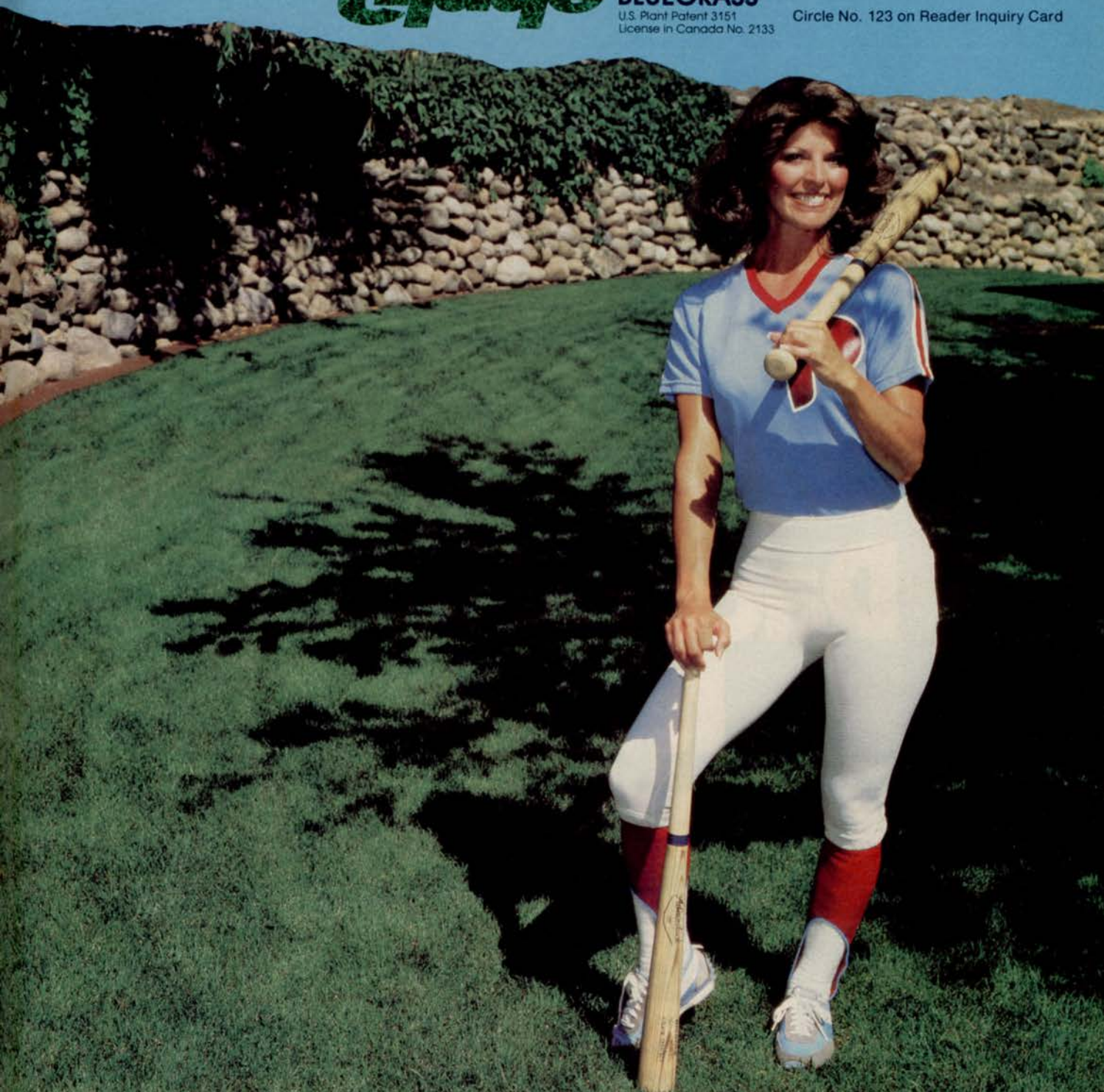
SWITCH HITTER

Shade or sun, Glade's a beauty that grows both ways. When trees and structures throw shadows on your plans, it's time to call in Glade to swing with the hot times and up to 60% shade. Excellent dark green color, fine texture and better disease resistance make Glade a big hit with crowds in recreation areas, or simply covering home and commercial grounds. Switch to Glade for consistently high scores in sun or shade. At your local wholesale seed distributor.

Glade KENTUCKY BLUEGRASS

U.S. Plant Patent 3151
License in Canada No. 2133

Circle No. 123 on Reader Inquiry Card



Another fine quality-controlled product of Jacklin Seed Company

Daconil 2787.®
It's the
groundwork for
a more
playable
course.

For more and more superintendents that's the case. Because they know effective disease control is the best way to achieve a better looking, more playable course. And that's why Daconil 2787 fungicide is the basis of their fungicide spray program.

Number one on tees and greens.

Daconil 2787 is the product of choice on America's tees and greens.

The reason... Daconil 2787 works. It consistently delivers unsurpassed control of 9 turf diseases including dollar spot (and benomyl-resistant dollar spot), Helminthosporium (leafspot and melting out), red thread and large brown patch.

Fact is, Daconil 2787 is the broadest spectrum contact fungicide on the market today.

What's more, in 15 years of continuous use, there has never been a documented case of resistance. Even on courses where it was applied at weekly intervals for many years.

Outstanding on fairways.

Make Daconil 2787 the groundwork of your program for fairways too. It will deliver the same unequalled disease control it does on tees and greens.

And you need first rate protection on fairways. Because diseases are mobile and can easily spread from fairways to tees and greens. Especially dollar spot, brown patch and leafspot.

You can control these three major diseases on a wide variety of grasses all season long with Daconil 2787 without having to worry about burning fairway turf even in the hottest weather.

Easy and economical to use.

The flowable formulation of Daconil 2787 allows for fast, easy handling because it flows readily and disperses quickly. So there's no clogging of spray equipment.

And since Daconil 2787 has a built-in surfactant, you're assured of superior sticking power, extended coverage on the crown and sheath of grass blades and excellent fungicide retention even after heavy rains or watering.

All of which adds up to proven residual control when used at recommended rates.

When you consider everything Daconil 2787 has to offer, it's no wonder more and more superintendents are making it the basis of their disease control program. On tees, greens, fairways and even ornamentals.

With a full and regular schedule of Daconil 2787, your turf will be healthier and more vigorous to better withstand traffic and play. And it makes for easier weed control too.

Groundwork like that adds up to a more playable course. And in your business, that's the name of the game.

Diamond Shamrock
Agricultural Chemicals Division
Diamond Shamrock Corporation
1100 Superior Avenue
Cleveland, Ohio 44114

Always follow label directions carefully when using turf chemicals.

Circle No. 112 on Reader Inquiry Card

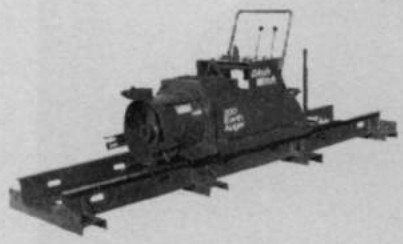
developed to help cradle and protect the tank. Models available include 7- and 23-hp gasoline engines.

Circle No. 176 on Reader Inquiry Card

Hesston Corporation announces the model T50 Rotary Tiller with a twin coupler hitch mouting and a center drive gear box. The model provides a 51" tilling width and can be pulled behind or offset tractors of 15 to 25 horsepower.

Circle No. 177 on Reader Inquiry Card

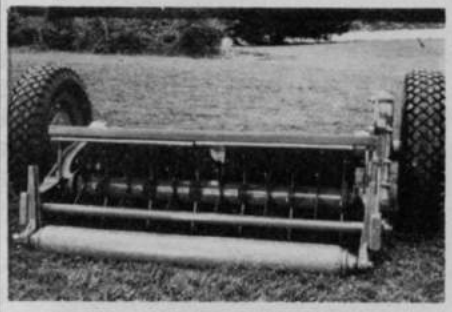
Ditch Witch is introducing the model 200 Earth Auger horizontal boring unit to free bore or push casing of lengths of



250 feet and diameters of 6- to 20-inches. The drive system is powered by a 30PF power unit.

Circle No. 178 on Reader Inquiry Card

Jacobsen now has a hydraulically driven mower that cuts turf vertically to control and remove thatch, reduce compaction and aerate the soil. The



mower interchanges with the company's hydraulic mowing tractors such as the HF-15.

Circle No. 179 on Reader Inquiry Card

Vandermolen Corp. has introduced its new WINDMILL 8-11 Wheeled Blower, powered by a 2 cycle Kawasaki

engine with electronic ignition. The 41 lb. blower generates a high pressure air blast of 225 mph. Its lightweight and pneumatic rubber tires are designed for easy maneuverability on steep slopes and uneven surfaces.

Circle No. 180 on Reader Inquiry Card

MILORGANITE

The natural organic fertilizer... Use in any season... Ideal for Lawns, Parks, Cemeteries and Athletic Fields

A DISTINCTIVE PRODUCT... Milorganite is a NATURAL ALL-ORGANIC fertilizer. It is easy to apply, without danger of burning, and watering-in is never necessary. Milorganite never deteriorates or hardens during storage. Milorganite contains natural organic nitrogen, phosphorus, iron and all secondary and minor elements needed by grass. All are released gradually and surely to insure uniform color and growth.

THE IDEAL PARK, CEMETERY AND HOME LAWN FOOD... It is easy to have a luxuriant turf. Follow the method used by leading golf courses everywhere. Grass is a VORACIOUS FEEDER and ample, slowly-released plant food encourages existing grass to spread and produce dense turf. Instead of reseeding constantly, the best golf courses

FERTILIZE REGULARLY EACH YEAR —with MILORGANITE.

Milorganite cannot burn the turf since it is not salty and *Milorganized* turf requires less water than other fertilizers.

MIX GRASS SEED WITH MILORGANITE ... The best way to insure even distribution of seed on new turf areas and when reseeding a poor lawn. Milorganite gets the young grass off to a fast start and hastens establishment of a dense, uniform grass cover. Milorganite is also ideal for trees, shrubs, and flowers.

MILORGANITE'S TRUE VALUE PROVED BY ANALYSIS AND RESPONSE! Milorganite is the greatest bargain in fertilizer today. It is loaded with dollar value materials completely lacking in other fertilizers sold for turf and ornamentals.

THE MARGIN OF SAFETY

Milorganite does not burn and is almost impossible to over-apply.

DO NOT USE ON EDIBLE CROPS

MILWAUKEE METROPOLITAN SEWERAGE DISTRICT

735 N. WATER ST., MILWAUKEE, WI 53202

Circle No. 130 on Reader Inquiry Card

You just can't buy a better rotary mower.

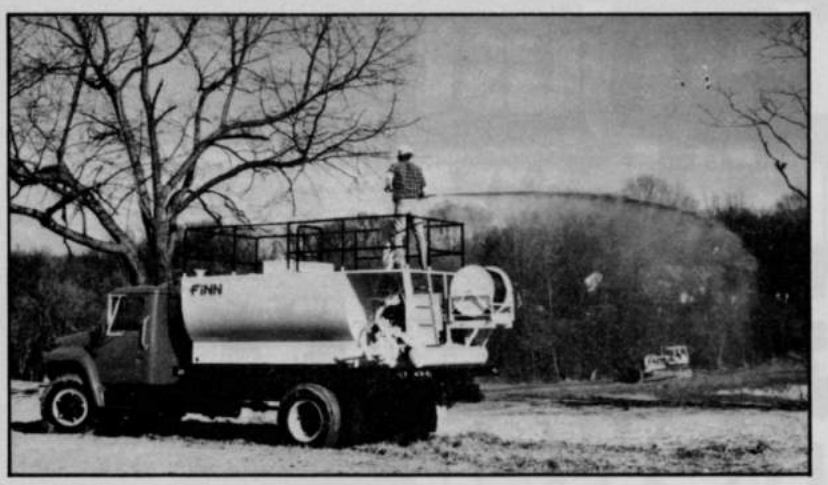
It's been proven time and again, day after day, acre after acre. You just can't buy a better cutting rotary mower. For a very convincing demonstration, call your Jacobsen Distributor.

JACOBSEN
TEXTRON

Jacobsen Division of Textron Inc.

Jacobsen: You just can't buy any better.

Circle No. 159 on Reader Inquiry Card



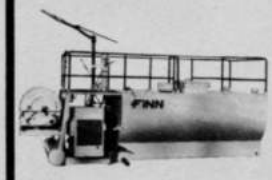
High Performance Tanks & Blowers

Finn Tanks for **Hydroseeding, Soil Stabilization, Dust Control, Fire Fighting, Street Flushing, Chemical Spraying,** and **Equipment Cleaning**. Versatility, high performance, economical operation, and low maintenance are major benefits of all Finn Tanks. All models are capable of mixing, suspending, and spraying heavier concentrations of dry solids, powders, liquids, or fiber mulches per gallon *than any other machines of their kind on the market*.

MODEL T80

T80 (800 gallons) — Built to fit the needs of small and large contractors as well as municipal projects. The low-profile T80 with its paddle agitation controlled by an hydraulic motor can run at speeds in excess of 100 RPM's and will handle all types of materials with a discharge distance up to 90 feet. The T80 comes with trailer or skid-mounting.

T150 (1500 gallons) — Comes skid-mounted and can be installed on a single-axle truck. The T150 is equipped with a diesel engine, hydraulically-controlled paddle agitation, and will deliver discharge distances up to 200 feet. A wide variety of spray nozzles makes the T150 a truly versatile unit.



MODEL T150

T250 (2500 gallons) and T300 (3000 gallons) — Ruggedly built for the big jobs. Dual hydraulically-powered paddle agitation with spray distances up to 200 feet and an additional 400 feet hose and reel attachment is available. Either truck frame or bed mounting, the low-profile design keeps overall height to a minimum.

MODEL T250 & T300

B250 — An all new mulch spreader with a power feed chute and capabilities of handling up to 25 tons of material per hour with a range of up to 90 feet. This unit saves the cost of one laborer to feed the blower making it a real profit producer for high production.

B50 (not shown) — Finn's small mulch spreader that efficiently handles 4 to 5 tons per hour making it a favorite where large quantities and long distance spraying aren't required. This low-cost machine can be converted into a debris collector and has several other optional attachments available.

MODEL B250

Twin-Jet Blower — For your next land clearing project, you'll want to investigate Finn's Twin-Jet Blower for controlled burning of non-marketable timber and landfill debris from construction activities. In producing 2000° temperatures, this machine stimulates burning rates up to *ten times faster* than conventional burning methods. Fly Ash pollutants are eliminated. Result: *clean air*! And this difficult job is speeded up. Result: *greater profits*!

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FINN CORPORATION

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PLANTS: CINCINNATI, OHIO - KNOXVILLE, TENNESSEE
PHONE (513) 871-2529

Circle No. 117 on Reader Inquiry Card

TORO *from page 22*

four men to do.

The introduction of the Sand Pro further reduced the labor needed on golf courses and other large turf areas. In the mid seventies, Toro's Turf Pro 84, a hydraulically driven reel mower equipped with grass catchers, was introduced for the specialized tasks of maintaining tees, approaches and collars, along with other formal and semi-formal landscaped areas.

During the '70's, Toro engineers strived to design the ultimate in large tractor operated fairway mowing equipment. And in 1978, the company unveiled its largest, most highly engineered piece of turf equipment—the HTM-175. Using hydraulics in a design that was completely new to the Toro product line, the HTM-175 combined the attributes of a premier mowing machine with the ultimate in labor-saving equipment.

Also in the 1970's, Toro developed the first in its line of highly mobile, out-front rotaries, the Groundsmaster-72. Powered by a water-cooled engine, the GM-72 proved to be a highly maneuverable, rapid transport, piece of equipment that worked particularly well on golf course roughs and other similar grounds.

No review of Toro's involvement in the turf management industry for the past 20 years would be complete without reference to the company's contributions in automatic turf irrigation. The company entered the commercial and golf course irrigation business in 1962 with the acquisition of Riverside, CA-based Moist O'Matic. Moist O'Matic was headed by Ed Hunter, an inventor who is today credited with first successfully using high grade plastics in irrigation equipment. With the earliest installations of Hunter's (and Toro's) plastic sprinkler heads, it became apparent that selected plastics offered a number of advantages over traditional brass heads. Plastic heads were not subject to rust or corrosion and, in Toro's case, because of their gear-driven design, they provided a more uniform, more precise water cover thereby conserving water. In addition, they were

Continues on page 80

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Electronic Technician/Dealer	43,041
Fast Service	50,378
Flooring	13,032
Food Management	49,723
Hearing Instruments	17,002
Home & Auto	22,424
Hotel & Motel Management	36,360
Housewares	12,678
Industrial Education	45,096

Magazine	Circulation
LP/Gas	13,664
Lawn Care Industry	12,178
Neurology	12,600
Paper Sales	12,061
Pest Control	14,624
Professional Remodeling	36,076
Quick Frozen Foods	20,721
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A

LOFTS *from page 22*

known clientele of Lofts/Maryland are the White House, Arlington National Cemetery, and the Robert F. Kennedy Stadium, home of the Washington Redskins.

A more recent venture of Lofts and Southern Turf Nurseries is Sunbelt Seeds, Inc. at Tucker, Ga., formed specifically to better serve the Southern recreational turf overseeding market. Overseeding is an expanding portion of the turf industry, extending the winter golf and recreational season throughout the South.

Today, the Bound Brook office serves as corporate headquarters, from which the second generation of the Lofts family, Peter and Jon, manage the far-flung operations of the company. Although large inventories of seed are maintained at strategic locations throughout the country, the New Jersey location alone includes 100,000 sq. ft. of storage space and blending facilities. A fleet of company owned trucks guarantees rapid delivery to customers. A unique delivery system in this industry.

As a most fortuitous circumstance, Lofts Seed is located in the proximity of the world-famous New Jersey Agricultural Experiment Station at New Brunswick and works in close conjunction with Rutgers University. It is here that the most intensive search for new varieties is led by Dr. C. Reed Funk. According to John Morrissey, Lofts' Vice President with this company over 30 years, Dr. Funk "can almost develop varieties on demand".

Special sod-mixing facilities are also located at Bound Brook. As an ardent supporter of the Interagency Certification procedure, all Lofts sod blends are packed under the direct supervision of the New Jersey Department of Agriculture's Division of Plant Industry. Lofts' proprietary varieties are carefully blended in separate, isolated areas to assure all seed is free from contamination.

Sod production is an expanding business, and the certification process is a cooperative one, including the seed companies, the Extension Service and the Department of Agriculture. Lofts has been one of the pioneers in the efforts to improve the sod business.

At Lofts' Martinsville, New Jersey Research Facilities, Rich Hurley, Vice President and Director of Agronomy and Research oversees an extensive, continuous research program. As the only commercial research facilities in this part of the country, it is where experimental varieties are evaluated for performance. Over 2,000 test plots enable Lofts' agronomists to conduct in-depth test programs for color, disease resistance, density, uniformity, heat and drought tolerance, effects of fertilization and shade performance. Greenhouses and shadehouses permit testing under a wide variety of controlled conditions. Varieties passing stringent tests at the New Jersey location are then evaluated under university supervision for climatic variations

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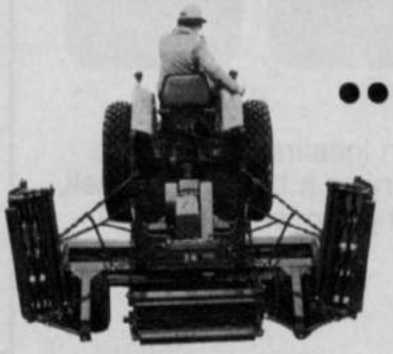

...It also cuts time, costs and covers its tracks.

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A better application method than foggers or mist-blowers, the sprayer disperses micron-size droplets in a high velocity air stream thus assuring better contact of flies, mosquitos and other flying insects as well as uniform coverage of crops, plants and trees. It is especially recommended and efficient for control of pests in public areas such as parks and campgrounds. And, the Hudson ULV Sprayer is ideal for mosquito larviciding and adulticiding.

The Hudson Porta-Pak ULV Sprayer offers significant user convenience and comfort, with a contoured backrest padded with foam and a large, comfortable discharge hose handle. The sprayer is extremely well suited for government and public insect and plant disease control projects of all types. And, as are all Hudson Professional Products, this sprayer is engineered and designed for long, trouble-free service.

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Circle No. 120 on Reader Inquiry Card

TORO *from page 76*

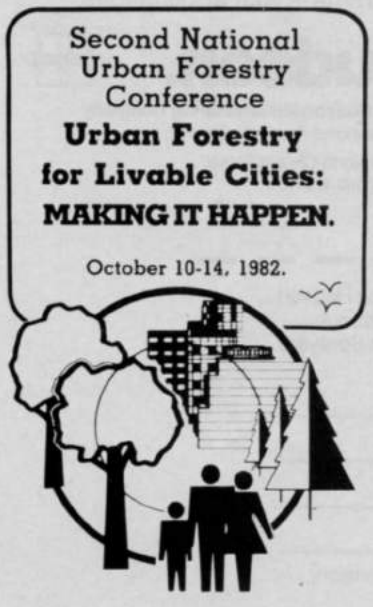
less expensive and easier to repair than brass heads.

Toro's superiority in irrigation equipment over other brands is now proven out by the sheer number of top golf courses throughout the United States and the world that use it. Today, Toro irrigates 62 of the top-ranked 100 U.S. courses.

The large expansion of golf courses was reduced dramatically during the late 1970's with the oil embargo and subsequently rising energy prices, according to Watson.

Since that time, the challenge of energy conservation has been on the minds of turf managers as well as equipment manufacturers, he said. Toro's diesel GM-72 and its new GM-62, in addition to its diesel power Parkmaster and HTM-175, are aimed at helping improve fuel efficiency. Toro irrigation systems, because of their flexibility, are also helping meet the energy challenge.

And, Toro has already begun studying what could emerge as the biggest challenge to date: water conservation. A fresh water shortage, which could be crucial to hundreds of turf managers, could result in dramatic changes in the way turf is managed. Toro, as it has in the past will continue listening to the needs of turf managers—and take their research and design cues from what they hear. **WTT**



LOFTS *from page 78*

Selmer Loft (left) and Dr. C. Reed Funk, turfgrass breeder for the New Jersey Agriculture Research Station.

and sensitivities. Promising varieties are then subjected to yield evaluations. These trials, conducted at research facilities on the West Coast, are required to determine a variety's ability to produce seed in sufficient quantities to warrant commerical release.

As a result of extensive research programs the turf industry has realized temendous growth, particularly in the introduction of improved, proprietary varieties. For instance, during the mid 60's, Manhattan was the household word when it came to ryegrasses. Since that time Lofts alone has introduced Yorktown, Yorktown II and Diplomat fine-leafed perennial ryegrasses. Soon two "new generation" perennial ryegrasses will be introduced—Palmer and Prelude.

In the area of tall fescues, only recently have the new fine-leafed varieties become available with the introduction of Rebel and Clemfine.

Lofts market can be broken into two distinct segments:

1. the retail market such as mass merchandisers, garden centers, hardware stores where they sell not only seed, but a complete line of turf care products to the homeowner.
2. the professional or trade market which includes the landscape architect, nurseryman, grounds maintenance person, automated lawn care specialist, sod producer and golf course superintendent.

Golf courses alone represent a large portion of Lofts business and the company principals boast of the use of Lofts varieties on many prestigious courses where major tournaments are played, such as Pinehurst Country Club, Augusta National, and two of Arnold Palmer's courses—Bay Hill in Florida and LaTrobe in Pennsylvania.

Despite the growth and change in the turf industry which has taken place over the last 20 years, Lofts continues to be one of the few remaining family-owned and operated enterprises. A visit to Lofts' Bound Brook location would find employees who have been with the company over 30 years. And, a customer can call and speak directly to either of the principals, Peter or Jon. In these complex days of multinationals, conglomerates, wholly-owned subsidiaries and the like, it is comforting to know that personal contact and pride in quality products are still alive and well at Lofts Seed. **WTT**

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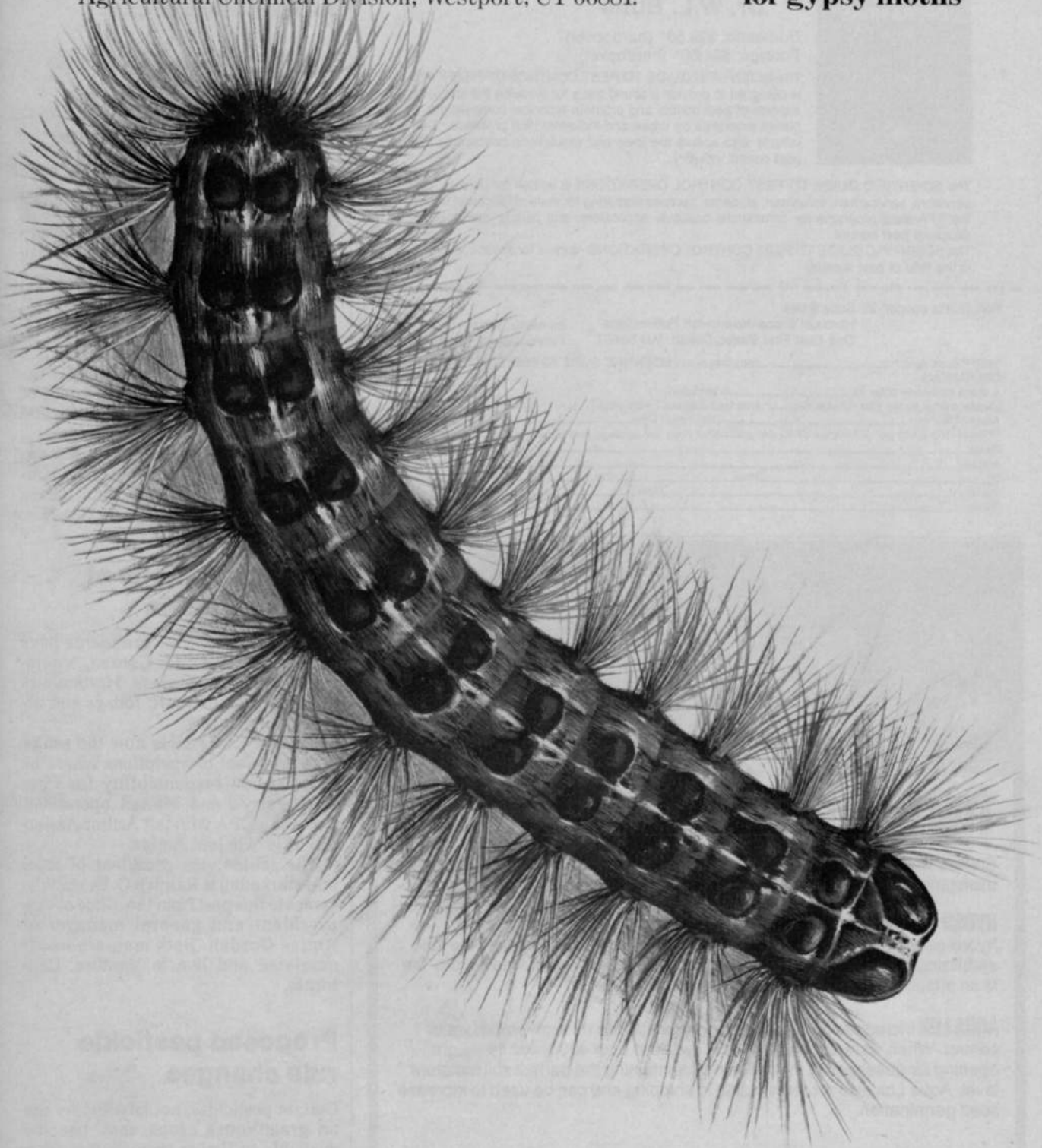

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is planned for October 1982 with product back on the market by January 1983.

Although the product will lose its patent protection in 1984, Diamond Shamrock elected to invest more than $20 million in reconstruction.

NURSERY

C.A.N. offers plant identification slides

Plant identification slides have been developed by the California Association of Nurserymen, Sierra College, Cal Poly and their Certification Committee. Designed as a study aid for prospective California nurserymen, the collection includes almost all of the plants in the Retail Nurseryman's Manual.

The 380 slides each depict a tree or a shrub in the landscape, a closeup of the branch or stem, and another closeup of the fruit or flower. Groundcovers and bedding are shown on single slides.

Both C.A.N. members and nonmembers can buy the slides by contacting Elaine Thompson Publications and Certification Director for C.A.N.

Two promotions at Amfac Garden

Two new senior vice presidents have been named at Amfac Garden. A nursery division of Amfac's Horticulture group, it produces turf, foliage and ornamental plants.

William C. Rowe is now the senior vice president of operations where he will assume responsibility for Cac-Turf, Perry's and Hawaii operations. Rowe is a CPA who left Arthur Anderson in 1974 to join Amfac.

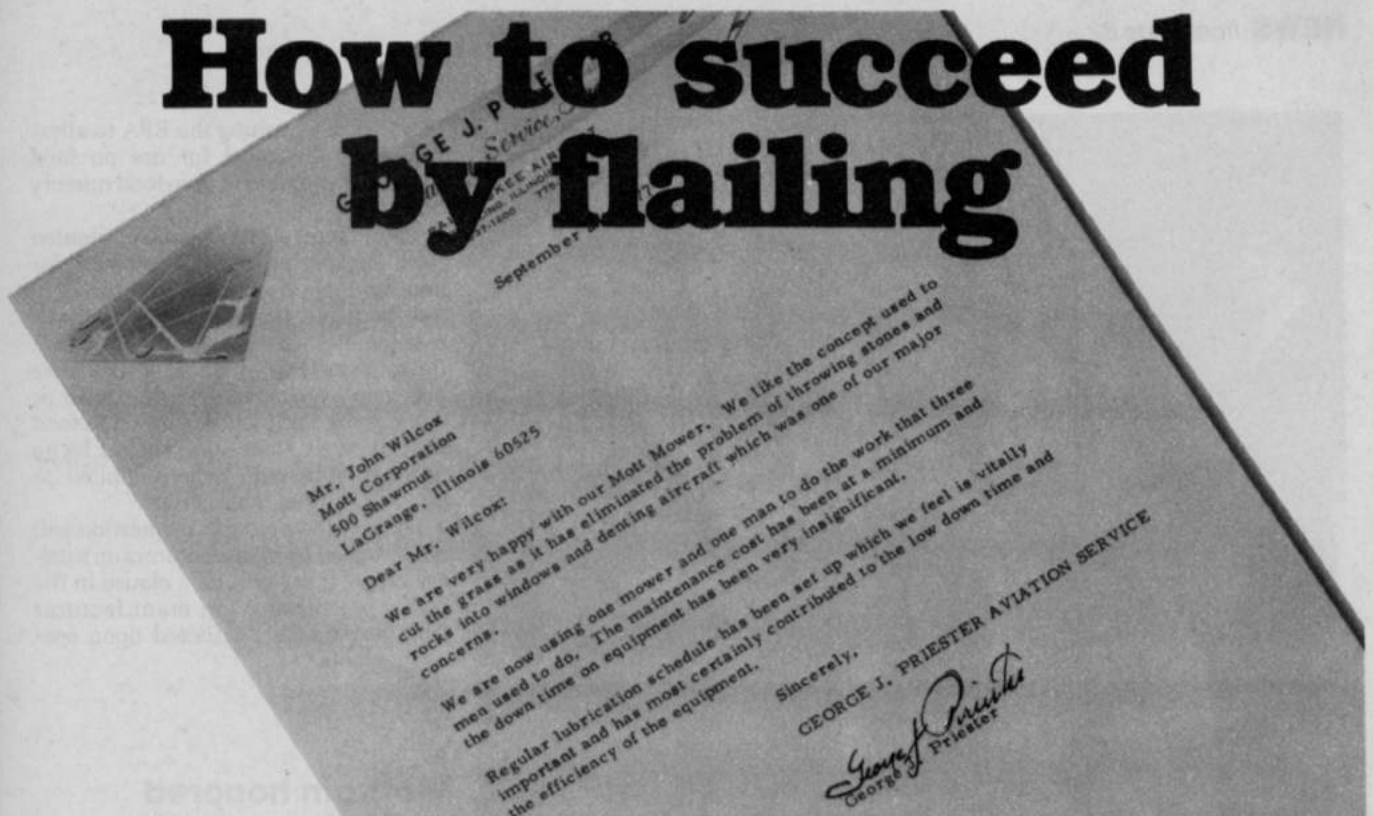
The senior vice president of sales and marketing is Ralph J. C. Evans who comes to this post from the office of vice president and general manager of Amfac Garden. Both men are headquartered and live in Ventura, California.

Proposed pesticide rule changes

Certain pesticides, not labelled for use on greenhouse crops, may become available to flower growers through a proposed EPA policy change. The Society of American Flower Growers, American Association of Nurserymen, and the National Association of Forest

Continues on page 84

How to succeed by flailing



September

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Dear Mr. Wilcox:

We are very happy with our Mott Mower. We like the concept used to cut the grass as it has eliminated the problem of throwing stones and rocks into windows and denting aircraft which was one of our major concerns.

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Sincerely,

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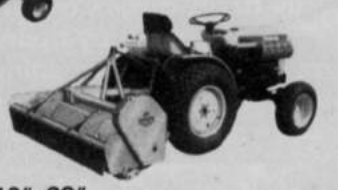

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Turfco/National Mower presented Boyd Distributing with its "Outstanding Sales Performance Award." Pictured are (left to right): Mike McPhilomy, Steve Hagan, Boyd; Scott Kaercher, Turfco; Larry Eggleston, Dan Boyd, Boyd.

Products are pushing the EPA to allow pesticides approved for use on food crops to be applied to non-food nursery crops.

Manufacturers have been prevented from registering these chemicals for non-food use because the high cost of testing is not borne out by the small market. But, as director of the SAF, Betty Sapp explains, "if a pesticide poses no unreasonable risk to man or the environment when applied to food or feed crops, then there should be no unreasonable risks when applied to nursery or greenhouse crops."

Because the products in question will not be tested by manufacturers on nursery crops, there will be a clause in the policy exempting the manufacturer from any damage inflicted upon specialty plants.

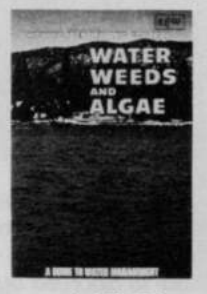
GOLF

Wolfrom honored by Michigan supers

Clarence H. Wolfrom has received the first Distinguished Service Award from

Continues on page 86

CONTROL WEEDS & ALGAE
on LAKES and PONDS



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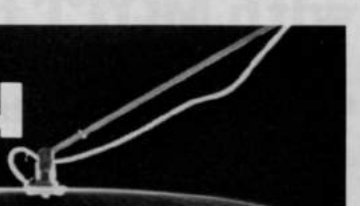

for better, cheaper, easier weed control along fences, roadways, irrigation ditches, around buildings and structures.

The HERBI gives Controlled Droplet Application . . . a revolutionary approach to the application of herbicides. Its spinning disc produces a consistent 250 micron droplet, meaning ultra low volume spraying, eliminating the need for high volumes of water. Gives exact and thorough coverage, with less chemical. Startlingly economical in cost and use.

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HBJ PUBLICATIONS does a better job of reaching those who count *(your potential employees)* than any other business publisher.

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Dental Laboratory Review	17,265
Dental Management	101,645
Drug & Cosmetic Industry	7,426
Electronic Technician/Dealer	43,041
Fast Service	50,378
Flooring	13,032
Food Management	49,723
Hearing Instruments	17,002
Home & Auto	22,424
Hotel & Motel Management	36,360
Housewares	12,678
Industrial Education	45,096
LP/Gas	13,664
Lawn Care Industry	12,178
Neurology	12,600
Paper Sales	12,061
Pest Control	14,624
Professional Remodeling	36,076
Quick Frozen Foods	20,721
Rent All	11,136
Roofing/Siding/Insulation	18,459
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Weeds Trees & Turf	42,375

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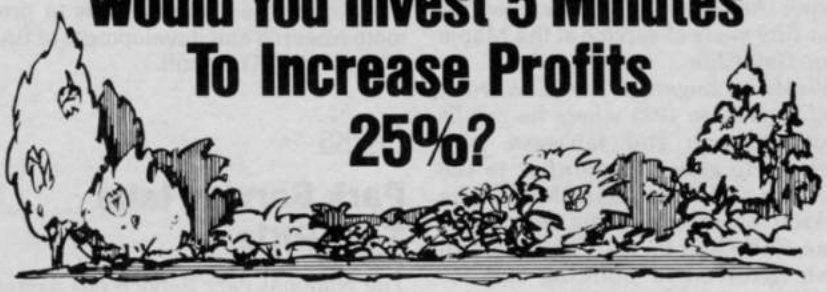

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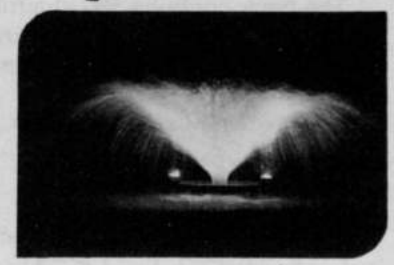

By day or night, these floating fountains help keep your water clean and odor-free naturally, and create a sparkling spray display that enhances the beauty of any surrounding. They are available in a variety of sizes and spray pattern designs, with optional Fountain-Glo lights.

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Circle No. 104 on Reader Inquiry Card

the Michigan and Border Cities Golf Course Association. He was cited for over fifty years of service at the Maple Lane Golf Club.

Wolfrom began at Meadowbrook Golf Course, in 1923 where he recalls moving rough and fairways with horses. He moved soon after to the Western Golf Club and then to the Jackson Masonic. Joining the Maple Lane Golf Club in 1931, he has since been involved in building and rebuilding most of the 54 holes.

SEED

Trumbull joins Oregon Fine Fescue Commission

Dan Trumbull has been named executive secretary of the Oregon Fine Fescue Commission. He takes over from Scott Lamb, who left to pursue personal interests.

In joining OFFC, Trumbull brings with him an extensive background in public relations and business management. OFFC is a state commission funded by grass seed growers. "The purpose of the commission is to promote research and development of fine fescue," said Trumbull.

PARKS

Park Service tabs Tom Ritter

The National Park Setvice has named Thomas Ritter as the new assistant National Park Service director for park use and operations. This office has responsibility for ranger activities, visitor services, natural resource management and special programs.

Ritter is an 18 year veteran of the Park Service, and was most recently the superintendent of Voyageurs National Park, Minnesota.

IRRIGATION

Safe-T-Lawn names Dvorak sales manager

Nick Dvorak has been named sales manager for Safe-T-Lawn, Miami, FL. Dvorak will assume responsibility for the marketing of all Safe-T-Lawn products.

A 20 year veteran of the irrigation industry, Dvorak started as an irrigation design trainee at Buckner Manufacturing. His most recent position was as vice president of sales and marketing at Royal Coach/Buckner Sprinklers.

RESEARCH

Noer Foundation okays $14,000 in research grants

The Board of the O.J. Noer Research Foundation approved more than $14,000 in turf research grants at its annual meeting during the GCSAA convention.

The Board approved an extension in funding to Texas A&M's Jim Beard for spring dieback research which has been stymied by unusually warm winters.

Nine new members, including *Weed Trees & Turf* Sales Manager James Brooks were approved for membership in the Noer Foundation.

Finally, An Aid For Teaching Turfgrass

Superintendents, Contractors, Lawn Care Managers, New, On-the-Job Reference. The Turf Managers' Handbook is a comprehensive, organized approach to turfgrass science and care. It has been designed and written by leading turf specialists from Purdue, Dr. William Daniel and Dr. Ray Freeborg, for on-the-job reference and as a text for students.

The book contains 150 illustrations and 96 color photographs. Data includes 240 tables and forms. Included are specifications for rootzones, employment, calculations for chemical applications, and extensive metric-imperial conversion. Business and technical aspects of turfgrass management are covered in this 424-page book. Planning, purchasing, hiring, construction, and plant selection are put together for easy on-the-job reference. Markets covered include lawn care, sod production, golf course management, cemeteries, athletic fields, and low maintenance areas. If it concerns turf, it's in the Turf Managers' Handbook.

TURF managers' HANDBOOK

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HBJ

WTT 42

Advances in Turfgrass Pathology

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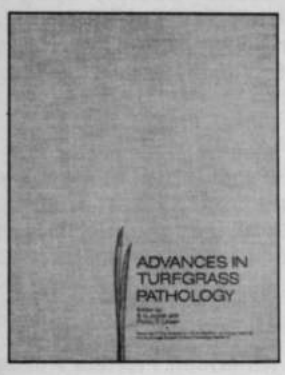

This extensive volume contains chapters on:

- turfgrass diseases
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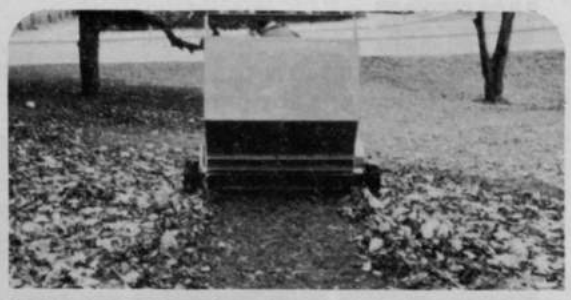

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EVENTS

The current issue of WEEDS TREES & TURF carries meeting dates beginning with the following month. To insure that your event is included, please forward it, 90 days in advance, to: WEEDS TREES & TURF Events, 757 Third Ave., New York, NY 10017.

Longwood Gardens Symposium, Longwood Gardens, Kennett Square, PA, **April 17.** Contact Claire Sawyers, Longwood Program, 153 Agricultural Hall, University of Delaware, Newark, DE 19711, 302/738-2517.

23rd Annual Southern California Turf and Landscape Institute, Anaheim Convention Center, Anaheim, CA, **May 4-5.** Contact Ed McNeill, Southern California Turfgrass Council, 1000 Concha Street, Altadena, CA 91001, 213-798-1715.

Arizona Turfgrass Conference, University of Arizona, Tucson, AZ, **May 6-7.** Contact Prof. W.R. Kneebone, University of Arizona, College of Agriculture, Department of Plant Sciences, Tucson, AZ.

Menninger Flowering Tree Conference, Cypress Gardens Quality Inn, Cypress Gardens, FL, **May 20-21.** Contact Dan Wood, Florida Nurserymen & Growers Association, P.O. Box 16796, Temple Terrace, FL 33687, 813/985-8511.

Kentucky Cemetery Association Annual Convention, Executive Inn, Louisville KY. June **June 10-12.** Contact Lewis Tingley, Resthaven Memorial Park, P.O. Box 18068, Louisville, KY 40218, 502/491-5950.

Florida Nurserymen and Growers Association Annual Convention, Doral Country Club, Miami, FL, **June 10-13.** Contact Barbie Derby, FNGA, P.O. Box 16796, Temple Terrace, FL 33687, 813/985-8511.

7th Nebraska Turfgrass Field Day & Equipment Show, Mead Field Lab, Lincoln, NE, **June 15.** Contact Robert Shearman, University of Nebraska, 377 Plant Science Bldg., Lincoln, NE 68583-0724, 402/472-2854.

American Bonsai Society Symposium 82, University of Maryland/College Park, **June 24-26.** Contact Tim Sobol, 1226 Woodrow Avenue, Norfolk, VA.

American Association of Nurserymen Annual Convention, Sheraton Waikiki Hotel, Honolulu, HI, **July 17-21.** Contact Bob Lederer, 202/737-4060.

Society of American Florists Annual Convention, Fontainebleau Hotel, Maimi, FL, **July 21-25.** Contact Darryl McEwen, 800/336-4743.

Residential Design Short Courses, Scottsdale Country Club, Scottsdale, AZ, **Basic Landscape Design, July 22-24; Landscape Construction Details, July 26-28, Advanced Landscape Drawing, July 30-31.** Contact ALCA, P. O. Box 27312, Tempe, AZ 85282.

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Planting Designs Short Course, Ohio Agriculture Research and Development Center, Wooster, OH, **August 2-4.** Contact Fred Buscher, Wooster Area Extension Center, Ohio State University CES, 216/262-8176.

California Associaton of Nurserymen Convention, El Rancho Hotel, Sacremento, CA, **Sept. 21-23.** Contact Elaine Thompson, CAN, 1419-21 Street, Sacremento, CA 95814, 916/448-2881.

Florida Nursery and Allied Trades Show, Curtis Hixon Convention Center, Tampa, FL, **Sept. 24-26.** Contact Barbie Derby, FNGA, P.O. Box 16796, Temple Terrace, FL 33687, 813/985-8511.

Garden Industry of America Conference & Trade Show, Cincinnati Convention Center, Cincinnati, OH, **Sept. 30-Oct. 2.** Contact Linda Nelson GIA, Box 1092, Minneapolis, MN 55440, 612/374-5200.

Bedding Plants Annual Meeting and Trade Show, Sheraton Towers, Orlando, FL, **Oct. 3-7.** Contact Maria Voigt, Bedding Plants, Inc., P.O. Box 286, Okemos, MI 48864, 517/349-3924.

22nd Annual Southern California Turfgrass/Landscape Equipment & Materials Educational Exposition, Orange County Fairgrounds, Costa Mesa, CA, **Oct. 6-7.** Contact Ed McNeill, SCTC, 1000 Concha Street, Altadena, CA 91001, 213/798-1715.

2nd National Urban Forestry Association Conference, Cincinnati Convention Center, Cincinnati, OH, **Oct. 10-14.** Contact Richard Pardo, AFA, 1319 Eighteenth Street NW, Washington, DC 20036, 202/467-5810.

Missouri Lawn & Turf Conference, Marriot Jan-tara, Osage, MO, **Oct. 11-13.** Contact John Dunn, 314/882-7511.

Pacific Horticultural Trade Show, Los Angeles Convention Center, Los Angeles, CA, **Oct. 13-15.** Contact Elaine Thompson, CAN, 1419-21st Street, Sacramento, CA 95814, 916/448-2881.

Interior Plantscape Association Fourth Annual Meeting and Trade Show, Portland Marriott, Portland, OR, **Oct. 25-27.** Contact Barry Wood, IPA, 11800 Sunrise Valley Drive, Reston, VA 22091, 703/476-8550.

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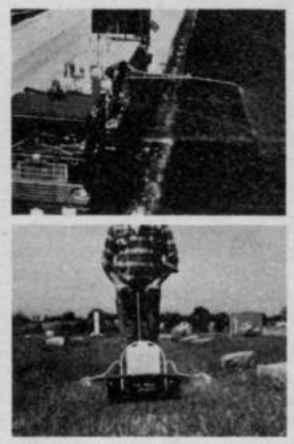

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SOD FARM MANAGER Northeastern Indiana location, 80 acres sod on mineral soil, 10 acres Taxus Evergreens. Experience/training in agronomy, horticulture, irrigation and use of turf netting desired. Responsible for production, harvesting, delivery and equipment maintenance. Salary commensurate with experience, excellent benefits. Resume and references to: Evergreen Turf Farm, Inc., P.O. Box 340, Roanoke, IN 46783. 4/82

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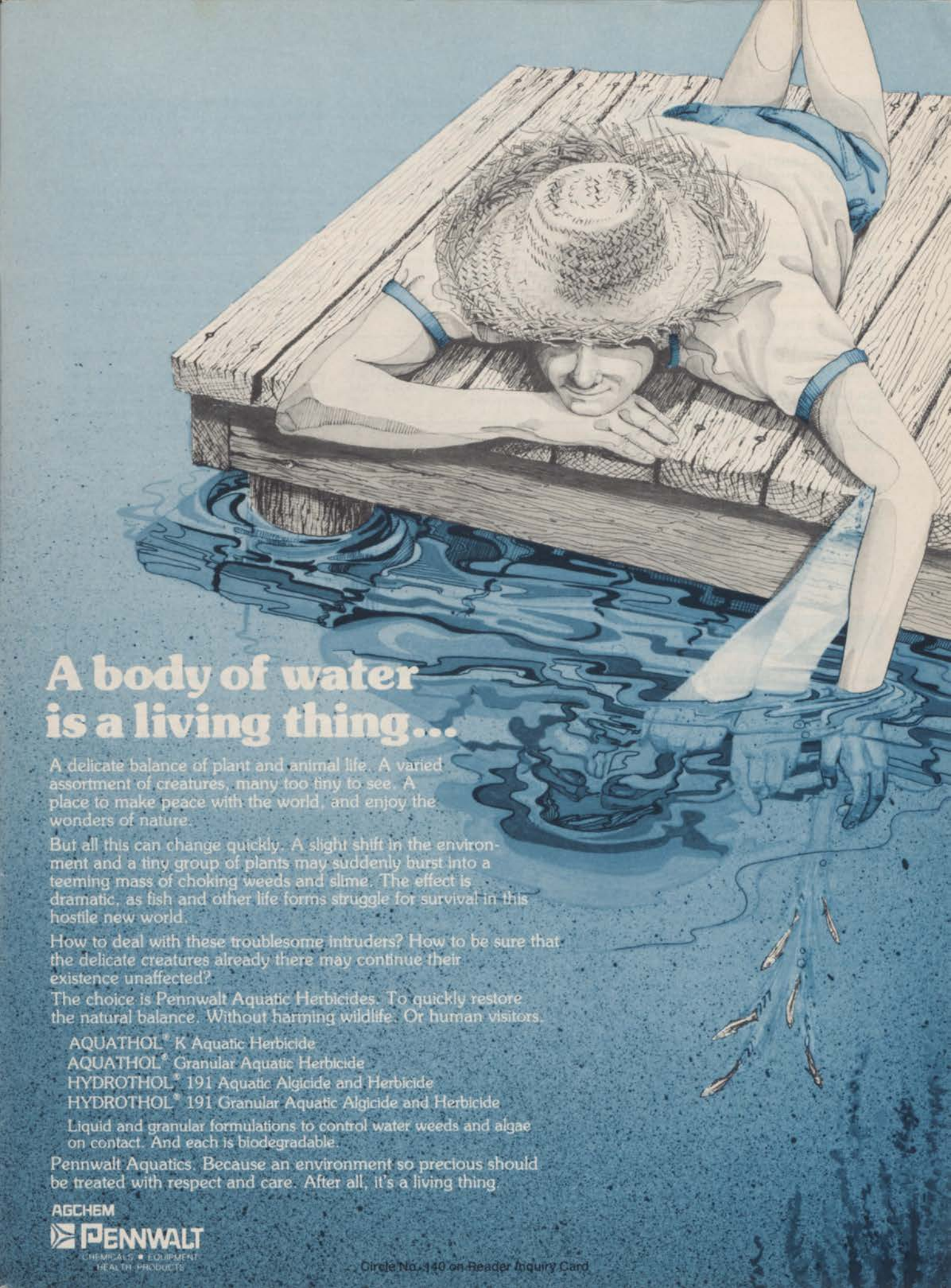

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Asplundh and hi-Ranger forestry bucket trucks, Asplundh wood chippers, Vermeer stump grinder 2460A. Excellent Condition! Log splitters. Mirk, Incorporated, (216) 669-3567. Residence, (216) 669-3562. 7629 Chippewa Road, Orrville, OH 44667. 4/82

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RYAN SOD HARVESTOR—Model 544. Excellent working condition with many replaced parts. Call anytime (406) 257-8585. 4/82

Asplundh Whisper Chipper, '77 Ford 330 16". Low hours, excellent condition, $7200.00 or trade for SS-60 GPM Sprayer of equal value. (716) 225-1850. 4/82

International Harvester Tractor, 2444 front end loader, power steering, 3 point hitch, 8 speed transmission, differential lock, live P.T.O. Excellent condition. $5,500.00. Call A.D. Rusin Landscaping, Inc., 340 North Drive, Lorain, Ohio. (216) 233-8217. 4/82

BUCKET TRUCK, Asplundh, with chip dump box, 42' working height; mounted on 1970 Ford F600. Good working condition. Phone (215) 395-2680, Allentown, Pennsylvania. 4/82

Chipper for Sale—1974 Asplundh 16" 330 V-8 engine, excellent condition. $7,100.00. (914) 666-7035. 4/82

CARETREE 40" Spade on SWINGER 200 4 wheel drive loader, like new, 500 hours, w/Bucket & Forks, very fast for B&B, $22,500., Tandem Axle trailer for same, $2,000., VERMEER TS-66 low hour Spade, Good Condition, $15,000. TREES INC., Box 1334, Bismarck, N. Dak. 58502. PHONE: (701) 223-3225. 4/82

TS44A VERMEER TREE SPADE. Very Good Condition. $9,000.00. Timber Ridge, Ltd., P.O. Box 500, Woodruff, Wisconsin 54568. (715) 356-5566 or 356-6631. 4/82

SEEDING EQUIPMENT 1—1974 Finn Titan Hydroseeder mounted on Mack Tandem Chassis, 1—1972 Finn Titan Hydroseeder mounted on Chevy Tandem Chassis, 1—1973 Finn Super Hydroseeder mounted on Chevy Chassis, 1—1969 Reinco Hydroseeder mounted on Ford Chassis, 1—1977 Finn Eagle Straw Blower, 2—1980 Reinco TM7 Power Mulchers. Call THE PAUL E. BLEILE COMPANY, Norwalk, Ohio (419) 668-3302. 4/82

STUMP KING STUMP CUTTER: Model 1064. $2,800. Contact: Jerry Smith N144 W16885 Pioneer Road, Jackson, WI 53037, (414) 251-3037. 4/82

Seaman Pulvimixer (rototiller), 6 ft. wide, 900 hrs., 4-71 diesel, very clean. Call Warner L. Hughes, Inc. 2375 Waterloo Rd., Suffield, Ohio 44261, (216) 628-9916. 4/82

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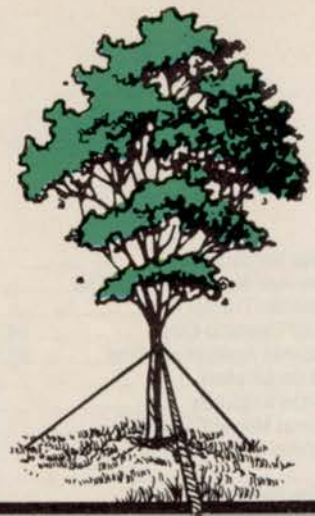

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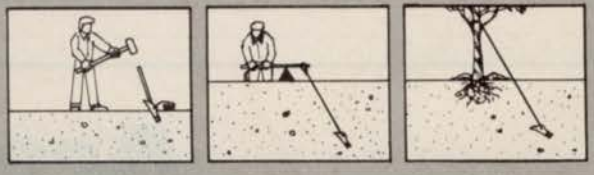

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Inquiries from distributors and manufacturers' reps are invited.

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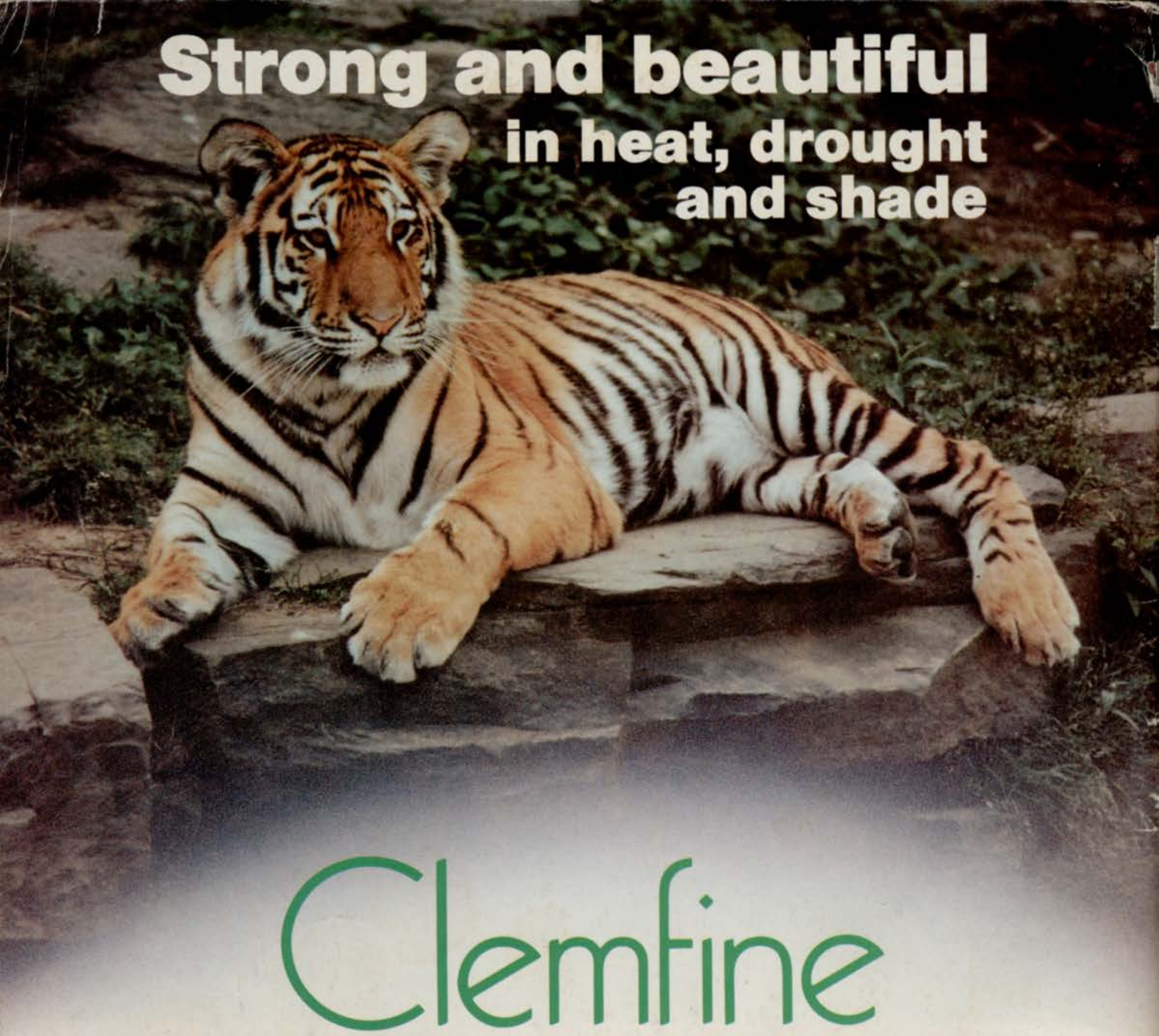

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